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CONDITIONS OF LABOR IN AMERICAN INDUSTRIES

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Conditions of Labor in American Industries

A SUMMARIZATION OF THE RESULTS OF RECENT INVESTIGATIONS

WITHDRAWN OCCIDENTAL COLLEGE LIBRARY

BY

W. JETT LAUCK

AND

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PREFACE

THE present volume is designed to meet a practical need for a compact collection of the results of the large number of investigations and studies of conditions under which the American wage-earner and his family work and live. It is presented merely as a summarization of the principal and fundamental facts that have been ascertained during the past decade and a half; it is not intended to be a critical discussion of these facts, or to be an argument in favor of or against any partizan conclusion, or any remedial program. Such conclusions as to the existence of a condition, or set of conditions, as appeared to be clearly warranted by the facts ascertained by official and other authoritative data, have been suggested, but the attempt has been made to avoid the statement of opinions or of conclusions which, altho the authors may feel convinced of their truth, are not generally agreed upon as the actual results of the various inquiries.

The presentation of the data has been confined to the conditions of wage-earners in manufacturing and mining industries because comparable data for workers in trade (with some exceptions), transportation, and agriculture, have not been found available. The summarization of even these data has been found to be extremely difficult because methods of investigation have varied; because there has been a wide difference in the scope of the in-

quiries; and because their results have often been stated in terms and in forms often impossible of comparison. So far as practicable the effort has been made to state the results of investigations in comparable terms, but computations have been studiously avoided in order to allow the results of various investigations to be given in their original form. In statements of earnings, for example, computations and estimates based upon daily and hourly rates have not been employed; only statements of actual earnings as shown in the reports of investigations have been used. It has been deemed best, in presenting a collection of data from many different sources, to shun the introduction of the element of statistical speculation as to general conclusions, which must necessarily be founded frequently upon meager or slightly related facts.

The mass of detail which students of labor conditions have accumulated in recent years is so great as to render impossible the inclusion in a single volume of a considerable amount of descriptive material. The authors have therefore been compelled to sacrifice much interesting and some illuminating data in order to keep within the limits of a practical handbook. The result is a statement, rather than description, of some of the fundamental conditions of labor in modern industry in the United States, which, it is hoped, will prove useful to the student, be he in the classroom or in his vocation, employer or employee, business man, social worker or legislator.

It is thoroughly realized by the authors that since the summer of 1915 there have been marked changes in wages, hours, and employment due to unusual industrial

activity. Attention has been called to these changes at various points in the presentation and, wherever there have been sufficient data, the general effects of these changes have been suggested. As yet, however, the results of investigations of the changed conditions of labor are not available. Moreover, the permanency of the changed conditions during the past two years is, it is believed, generally regarded as problematical in considerable degree. The summary presented in this volume is thus a summary of conditions as they have been found to exist in the period roughly indicated as beginning with 1900 and ending with 1914 or 1915.

Much of the labor and facilities necessary for such a summarization were rendered possible by the fact that the authors were assigned to undertake a similar task for the Federal Commission on Industrial Relations, the results of which, however, were not published. The authors desire to express acknowledgments to other members of the Commission's staff for such data as they collected in unpublished reports made for the Commission's use, and especially to Mr. J. H. Bradford, Miss Frances Valiant, Mr. Leifur Magnusson, and Dr. Ralph D. Fleming, who for a time were assigned to assist the authors. The volume contains considerable data later collected and added, however, and particular acknowledgments are due to Mr. Leifur Magnusson for the preparation of some of the material not included in the scope of the Commission's assignment. The sections on Profit-Sharing, Welfare Work, and Scientific Management were also prepared by Mr. Magnusson. The Index was prepared by Mr. E. Kletsch of the Catalog Division, Library of Congress.

CONDITIONS OF LABOR IN AMERICAN INDUSTRIES

I

THE LABOR FORCE

THE RACIAL COMPOSITION OF INDUSTRIAL WORKERS

SEVERAL years ago the former United States Immigration Commission conducted an exhaustive inquiry as to the racial composition of American industry, and the situation at present is practically the same as it was when this investigation was made. The extent to which different alien races were employed in American industries, as disclosed by the Immigration Commission, summarily stated, was as follows:

Native-born Americans of native father, 25 per cent.
Native-born Americans of foreign father, 17 per cent.
Foreign-born .. .. 58 per cent.

Fewer than one out of every four workers in our basic industries are, therefore, native Americans; while more than three out of every five industrial workers are of foreign birth. The remainder, constituting about 17 per cent., are immigrant workmen of the second generation. Of the native American workers in mines, mills, etc., one-fifth are negroes, and four-fifths, whites. On the basis of general nativity, 42 per cent. of the industrial forces are of native birth while 58 per cent. were born abroad.

The Native White American

The native-born white American, or native-born whites of native fathers, are employed most extensively in the

manufacture of cigars and tobacco, collars and cuffs, glass, gloves and shoes. Only a small percentage, ranging from one-fifth to one-tenth of the wage-earners in the leading branches of American industries, are native white Americans. The native negroes have their largest numbers of workers in cigar and tobacco manufacturing, bituminous coal mining, and in construction work in the Southern States; considerable proportions are also employed in slaughtering and meat-packing establishments.

The Foreign-born Wage-earners

The proportion which foreign-born wage-earners constitute of the total operating forces of some of our leading industries may be briefly stated, as follows:

Industry	Per cent. of all employees
Agricultural implements and vehicles	60
Boots and shoes	27
Cigars and tobacco	33
Clothing	72
Bituminous coal mining	62
Copper mining and smelting	65
Cotton goods manufacturing	69
Furniture manufacturing	59
Glass manufacturing	39
Iron and steel manufacturing	58
Iron ore mining	53
Leather manufacturing	67
Oil refining	67
Silk dyeing	75
Silk goods manufacturing	34
Slaughtering and meat packing	61
Sugar refining	85
Woolen and worsted goods manufacturing	62
Electric supplies manufacturing	45
Firearms manufacturing	40
Foundry and machine shops	55
Total (all leading industries)	58

The Germans

The German industrial workers of the second generation, as well as those of recent arrival in this country, are most extensively employed in agricultural implement and vehicle manufacturing, boot and shoe factories, clothing, glass, gloves, iron and steel, leather, oil refining, silk goods, silk dyeing, slaughtering and meat packing, electric supplies, cutlery and tools, car building, firearms, foundry and machine shops, locomotive building, hosiery and knit goods, zinc smelting and refining.

Wage-earners from Austria-Hungary

The principal wage-earners from Austria-Hungary are Bohemians, Croatians, Magyars and Slovaks. Most of these industrial workers are of recent arrival, and comparatively small proportions of those of the second generation, or of native birth but of foreign father, are employed. Croatians are found in largest numbers in railroad and other construction work, copper mining and smelting, iron and steel manufacturing, iron ore mining, slaughtering and meat packing, bituminous coal mining, leather manufacturing, and oil refining. Magyars, or Hungarians, are distributed throughout all industries, the greatest numbers being found in iron and steel manufacturing, bituminous coal mining, silk dyeing, and sugar manufacturing. The Slovaks are most largely employed in bituminous coal mining, oil refining, and iron and steel manufacturing. The Bohemians have their largest proportions engaged in manufacturing clothing, agricultural implements and vehicles, in slaughtering and meat pack-

ing, and in making electric supplies. They are also well represented in the manufacture of glass, gloves, iron and steel, furniture and leather. Altogether, wage-earners from Austria-Hungary make up, at least, 15 per cent. of the operating forces of our leading industries.

The Poles and the Italians

Italians, both from the north and south of Italy, are extensively employed and constitute about 7 per cent. of the total number of industrial workers. Their largest numbers are engaged in railroad and other construction work, iron ore and bituminous coal mining, and in the manufacture of clothing, foundry and machine shops, and hosiery and knit goods mills. The Poles are at work in practically all branches of industry, the greater proportion being employed in sugar refineries, cotton mills, furniture factories, bituminous coal mines, slaughtering and meat packing, leather manufacturing, car and locomotive building, zinc mining and smelting, in foundry and machine shops, and in the rope, twine and hemp industry.

The "War Order" Industries

Probably the racial make-up of the operating forces of industries which have received European war orders has changed in some cases, especially in the manufacture of explosives, since the investigation of the Immigration Commission. So far as information is available, however, it will be of value to note the conditions in those branches of industry most directly related to war. In the manufacture of firearms, the Immigration Commis-

sion found that two-fifths of the employees were of foreign birth, the principal races represented being French-Canadians, English, Irish, Germans, Italians, Poles, Scotch and Swedes. In foundries and machine shops, 55 per cent. of the workers were of foreign birth, the leading races being English, German, Irish, Italians, Swedes and Poles. In cutlery and tool establishments, 63 per cent. of the wage-earners were foreign-born, the largest proportions being composed of Swedes, Germans, Irish, Poles and English. In the coal mines, the Slovaks, Poles, and Italians, and Croatians predominate, as well as in the labor forces of iron and steel plants and blast furnaces.

Racial Distribution in Industries

Altogether, 56 distinct races were found by the Immigration Commission to be represented at work in the leading branches of American industry. Almost one-half of the foreign-born workers were from Southern and Eastern Europe, the largest numbers of those of foreign birth being from Austria-Hungary, Italy, Russia, and the Balkans. The distribution of employees by races in 21 basic industries of the country is shown in the table on pp. 6 and 7, in terms of percentages. This table was compiled by the former United States Immigration Commission and is based on data secured from 507,256 wage-earners.[1]

Similar information was secured for 16 minor industries including 112,339 employees. This is set forth in the table on p. 8, in terms of percentages by sex and industry.[2]

[1] Report of U. S. Immigration Commission Abstract of Reports on Immigrants in Mining and Manufacturing, Washington, 1911, Vol. I, pp. 332-333.

[2] *Idem*, pp. 343-345.

RACE DISTRIBUTION OF EMPLOYEES FOR WHOM INFORMATION WAS SECURED, BY INDUSTRY; PERCENTAGES

(STUDY OF EMPLOYEES)

[Only races represented by 500 or more employees are shown in detail]

GENERAL NATIVITY AND RACE	Total of 21 industries	Agricultural implements and vehicles	Boots and shoes	Cigars and tobacco	Clothing	Coal mining (bituminous)	Collars, cuffs, and shirts	Construction work	Copper mining and smelting	Cotton goods	Furniture	Glass	Gloves	Iron and steel	Iron ore mining	Leather	Oil refining	Silk dyeing	Silk goods	Slaughtering and meat packing	Sugar refining	Wool and worsted goods
Native-born of native father:																						
White	20.1	19.4	46.7	31.4	5.3	21.0	50.1	10.4	21.1	9.4	20.9	40.2	50.3	24.2	13.5	17.0	11.1	14.2	20.8	17.7	5.6	13.7
Negro	5.0	.8	.3	20.6	.1	7.6	.1	9.4	(a)	(a)	.3	2.1	.4	4.7	29.6	.4	.7	.0	.0	7.1	.8	(a)
Indian	(a)	.0	.0	.0	.0	(a)	.0	.0	.0	.0	(a)	.0	.0	.0	.0	.0	.0	.0	.0	(a)	.0	.0
Native-born of foreign father, by country of birth of father:																						
Austria-Hungary	.9	.7	.9	1.1	5.4	.9	.1	(a)	.1	.2	.2	1.4	.1	.5	.1	.2	1.7	.0	3.4	1.2	.1	.1
Canada	1.9	.7	3.1	.1	.3	.1	5.2	(a)	3.3	8.1	1.2	.2	.0	.2	.7	.3	.4	.1	.5	.4	.2	5.4
England	2.1	1.2	1.7	.6	.4	2.0	2.7	.2	3.8	3.9	1.1	1.9	4.8	1.9	.1	.6	1.6	1.2	5.4	.8	.6	3.7
France	.2	.2	.3	.3	.1	.2	.0	(a)	.1	.1	(a)	.6	.1	.2	(a)	.2	.3	.2	.5	.2	.1	.1
Germany	4.8	10.1	9.3	6.2	10.0	2.6	3.3	.8	2.7	.7	5.0	9.1	4.8	5.0	.4	8.2	6.4	3.7	10.3	6.0	3.0	2.9
Ireland	4.6	3.1	8.2	4.8	1.4	1.5	22.4	2.3	1.2	7.0	1.9	2.4	4.0	3.5	.6	4.1	9.6	2.8	10.6	3.9	3.6	10.3
Italy	.3	.1	.5	.6	1.1	.2	.4	.0	.1	.1	.1	.4	.3	.1	.1	.2	.2	.5	1.1	(a)	.1	.4
Netherlands	.2	.2	(a)	(a)	.1	(a)	.0	.0	(a)	(a)	7.1	(a)	.0	(a)	(a)	(a)	(a)	1.6	3.1	.1	.0	(a)
Russia	.5	.9	.3	.5	2.8	.2	.3	(a)	.2	.1	.5	.7	.2	.2	.1	.8	.2	.0	3.8	.7	.4	.1
Scotland	.6	.4	.5	.2	.1	1.0	1.0	.1	.3	.6	.1	.5	.6	.6	.1	.2	.3	.1	1.6	.3	.2	.9
Sweden	.3	1.6	.2	.1	.3	.1	.1	.1	.2	.1	1.8	.2	.2	.2	.7	.4	.3	.3	(a)	.4	(a)	.1
Switzerland	.1	.2	.3	.1	.1	(a)	.1	.1	.1	(a)	(a)	.2	.0	.1	(a)	.2	.1	.0	1.4	.1	(a)	(a)
Wales	.4	.2	(a)	(a)	(a)	.5	.1	(a)	.1	.1	.2	.3	.0	.9	.0	(a)	.2	.1	2.5	.1	(a)	.1
Other countries	.1	.6	.3	.9	.3	.2	.8	.0	1.4	.8	.4	.5	.6	.0	1.4	.3	.2	.1	.7	.3	.1	.3
Foreign-born, by race:																						
Armenian	.1	.2	.7	(a)	(a)	(a)	.3	.0	.0	.2	.2	.0	.0	.1	.0	.6	.0	.0	.2	.1	.1	.5
Bohemian and Moravian	.9	1.4	.6	.2	4.7	.8	.0	(a)	(a)	.1	.3	.3	.8	.3	.3	.6	.3	.0	.1	4.1	.2	.1
Bulgarian	.2	(a)	.1	(a)	(a)	.2	.0	3.7	(a)	(a)	(a)	.6	.0	.2	.7	.1	(a)	.0	(a)	.3	.1	(a)

Canadian, French	3.5	.4	2.8	(a)	.1	(a)	2.7	.0	4.1	19.5	.3	(a)	.2	(a)	.7	.4	.1	.1	.8	.2	.0	8.5
Canadian, Other	.5	.8	2.1	.1	.1	(a)	.2	.1	1.1	.9	1.5	.1	.7	.2	.3	.2	.4	.0	.3	.4	.7	1.3
Croatian	2.0	.7	(a)	.2	.3	2.7	.0	9.6	7.0	(a)	.0	.1	.2	4.6	4.1	1.4	1.9	.0	(a)	3.8	.1	.0
Cuban	.7	.0	(a)	9.7	(a)	(a)	.0	.0	.0	.0	.0	.0	.0	(a)	.0	.0	.0	.0	(a)	.0	(a)	(a)
Danish	.1	.8	.1	(a)	.2	(a)	1.3	.1	(a)	(a)	.5	(a)	.2	.1	.1	.2	.3	.1	(a)	.3	.1	.1
Dutch	.3	.6	(a)	.2	.1	.1	.0	(a)	(a)	.1	18.6	(a)	.0	.1	(a)	.1	(a)	8.6	2.0	.2	(a)	.1
English	3.4	1.0	1.1	.4	.3	2.8	.9	.4	11.7	7.9	.8	1.6	12.3	2.7	2.7	.5	1.8	1.7	4.6	.7	1.1	9.3
Finnish	.8	.1	(a)	(a)	(a)	.1	.0	.4	21.5	(a)	.1	(a)	.0	.4	13.0	(a)	.1	.0	(a)	(a)	.1	2.1
French	.5	.1	.1	.1	.1	.9	.1	(a)	(a)	.3	.1	1.1	1.8	.2	.0	.3	.1	1.4	1.1	.1	.1	1.6
German	4.1	9.4	1.6	1.7	3.4	3.1	1.0	.2	1.8	1.1	3.5	5.8	3.0	5.1	.6	9.0	5.1	11.1	6.5	7.7	11.9	3.7
Greek	1.2	1.2	1.9	.9	.1	.1	.0	2.3	.0	4.1	.0	1.0	.0	.7	(a)	4.8	.1	.0	.2	.9	.1	.9
Hebrew, Russian	1.0	.2	2.9	.4	18.6	.0	.1	(a)	.0	.1	.2	(a)	4.1	(a)	(a)	.7	.2	.0	2.0	.4	.2	.5
Hebrew, Other	.4	.1	.3	.2	7.1	(a)	.0	.0	.0	(a)	(a)	(a)	.4	.1	.0	.3	(a)	.1	.4	.2	.2	(a)
Irish	3.1	1.9	1.7	.9	.4	1.1	3.8	2.4	.6	6.4	.5	.6	1.0	2.8	.2	2.0	13.6	2.6	1.7	4.4	7.1	6.4
Italian, North	3.0	1.1	1.8	.6	5.7	7.5	.3	11.1	7.6	.4	.6	2.3	1.2	1.3	8.7	2.6	.4	13.4	5.0	.2	.7	4.2
Italian, South	4.0	1.2	3.4	5.3	14.4	4.8	.4	33.4	.8	1.1	1.3	5.1	4.8	2.1	3.1	3.0	2.6	25.3	2.1	.4	1.4	8.1
Lithuanian	2.1	3.1	.7	(a)	4.1	2.1	.0	.2	.6	.4	3.0	.2	.0	1.1	.3	1.6	2.5	.1	.6	6.7	16.7	2.6
Macedonian	.1	(a)	.1	.1	.0	(a)	.0	.2	.0	.1	.0	.5	.0	.3	.1	.3	.0	.0	.0	.1	.0	(a)
Magyar	2.4	2.8	.2	1.5	1.2	5.2	.0	1.0	1.6	(a)	.1	1.8	.1	5.4	.1	2.1	2.2	3.5	.2	1.1	2.4	(a)
Norwegian	.1	.7	.1	(a)	.3	(a)	.0	.7	.6	(a)	.5	(a)	.1	.1	.4	(a)	.7	.1	(a)	.3	.2	(a)
Polish	9.6	19.6	1.1	2.3	5.9	8.3	.3	3.5	1.0	13.4	11.2	5.5	.2	9.2	6.0	21.8	16.8	.4	2.0	16.4	30.2	5.3
Portuguese	1.2	.0	.1	(a)	(a)	(a)	.0	.0	.1	8.8	.0	(a)	.0	(a)	.0	.0	.0	.0	.0	(a)	.1	.4
Roumanian	.4	.1	.2	.2	.5	.2	.0	1.3	.3	(a)	(a)	.8	.2	1.1	(a)	.4	.0	.0	(a)	.1	(a)	(a)
Russian	1.5	1.1	.6	.6	2.7	2.1	1.5	1.8	.1	.7	.4	1.2	.7	1.6	.3	1.6	1.7	.4	.5	2.3	6.4	1.3
Ruthenian	.2	.6	(a)	(a)	(a)	.3	.0	(a)	.0	.2	.1	.3	.0	.1	.1	.1	.9	.0	(a)	.1	.9	.1
Scotch	.8	.4	.2	.1	(a)	1.3	.3	.1	.2	1.1	.1	.2	.2	.8	.1	.1	.6	1.2	1.1	.4	.5	1.7
Servian	.3	.4	(a)	(a)	(a)	.1	.0	.3	.1	(a)	(a)	.1	.0	1.2	.1	.1	.0	.0	.0	.7	.1	(a)
Slovak	5.0	1.1	1.9	.6	.8	12.8	.0	1.2	.1	(a)	.2	5.8	.4	10.5	2.2	4.9	12.4	.3	.6	2.8	2.5	(a)
Slovenian	1.0	.5	(a)	.2	.2	2.2	.0	(a)	2.2	(a)	(a)	.4	.2	1.6	4.5	3.8	.3	.1	.1	.9	.2	(a)
Spanish	.4	(a)	(a)	5.5	(a)	(a)	.0	.1	.0	(a)	.0	.0	.0	(a)	(a)	.0	.0	.0	(a)	(a)	(a)	(a)
Swedish	1.1	6.1	.6	(a)	.3	.3	.0	.6	1.6	4	14.7	.8	.4	1.2	2.3	2.5	.8	.0	.1	1.2	.3	.2
Syrian	.3	(a)	.1	(a)	(a)	(a)	.1	.2	(a)	.7	.1	.3	.1	(a)	(a)	(a)	(a)	.2	.1	.1	.0	1.9
Welsh	.4	.1	(a)	(a)	.1	.5	.0	(a)	.1	.3	.1	.1	.0	1.4	(a)	(a)	.1	.0	.6	(a)	(a)	.1
Other races	1.2	1.8	.2	.6	.5	2.3	.1	1.7	.5	.4	.1	2.7	.2	1.1	1.6	.9	1.7	4.4	1.4	3.1	.6	.9
Grand total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total native-born of foreign father	17.0	20.2	25.6	15.5	22.4	9.5	36.5	3.6	13.6	21.8	19.6	18.4	15.7	13.4	4.3	15.7	21.5	10.7	44.9	14.5	8.4	24.4
Total native-born	42.1	40.4	72.7	67.4	27.8	38.1	86.6	23.4	34.7	31.3	40.9	60.7	66.5	42.3	47.4	33.0	33.3	24.9	65.7	39.3	14.7	38.1
Total foreign-born	57.9	59.6	27.3	32.6	72.2	61.9	13.4	76.6	65.3	68.7	59.1	39.3	33.5	57.7	52.6	67.0	66.7	75.1	34.3	60.7	85.3	61.9

a Less than 0.05 per cent.

RACE DISTRIBUTION OF EMPLOYEES IN 16 INDUSTRIES FOR WHOM CERTAIN INFORMATION WAS SECURED, BY INDUSTRY; PERCENTAGES

[Only races represented by 500 or more employees are shown in detail]

(STUDY OF EMPLOYEES)

Male

GENERAL NATIVITY AND RACE	Carpet manufacturing	Car building and repairing	Cutlery and tool manufacturing	Electric railway transportation	Electric supplies manufacturing	Firearm manufacturing	Foundry and machine shop products manufacturing	Hosiery and knit goods manufacturing	Locomotive building and repairing	Paper and wood pulp manufacturing	Paper products manufacturing	Rope, twine, and hemp manufacturing	Sewing machine manufacturing	Steam railway transportation	Typewriter manufacturing	Zinc smelting and manufacturing
Native-born of native father:																
White	20.3	27.3	18.5	32.6	29.3	33.0	24.4	33.7	27.0	40.9	29.1	14.2	15.0	37.2	52.1	4.6
Negro	.2	1.8	.0	.0	.0	.0	.3	.0	.2	1.4	.3	.1	.5	.6	.2	.0
Native-born of foreign father, by country of birth of father:																
Austria-Hungary	.9	.5	.2	.0	.9	.3	.2	.4	.1	.1	.2	.2	.7	.5	.2	.3
Canada	3.7	.4	1.0	.1	.9	8.8	1.2	1.8	.4	6.0	6.8	3.6	.4	.2	1.1	.1
England	2.4	1.2	1.7	1.7	2.6	2.2	2.5	2.5	1.9	1.6	2.7	1.0	1.6	2.7	5.9	1.2
Germany	5.1	8.1	5.2	4.3	8.8	4.5	6.5	6.8	9.6	2.0	6.2	.6	13.8	7.0	6.8	26.1
Ireland	4.2	3.0	5.6	22.9	5.3	8.3	6.1	8.5	9.9	6.2	10.4	3.4	6.5	10.1	8.3	3.9
Russia	.2	.3	.5	.2	.2	.2	.2	.6	.4	.1	.1	.2	1.1	.1	.1	2.3
Scotland	.9	.4	.4	1.0	1.5	1.2	.8	.7	.9	.7	1.0	1.0	.6	.7	1.1	.3
Wales	.2	.3	.1	2.7	.3	.5	.7	1.1	.1	(a)	.0	.0	.1	1.4	.7	.0
Other countries	1.4	1.8	3.7	.6	1.5	.9	1.6	1.4	.9	.6	1.3	.0	1.2	.5	1.4	.2
Foreign-born, by race:																
Bohemian and Moravian	.1	1.1	.0	.0	3.1	.0	.3	.2	.3	(a)	.0	.0	1.9	.1	.1	.0
Canadian, French	5.5	.2	.8	.0	.7	12.8	1.4	.9	.7	8.8	5.6	5.8	.2	(a)	.5	.0

Canadian, Other	.4	.7	.2	.3	1.9	.8	.5	.2	.3	2.8	2.5	.6	.2	.1	1.3	.1
Croatian	.0	1.2	.0	.0	2.9	.0	.9	.0	(a)	.1	.0	.0	.3	.9	.0	.1
English	11.5	2.0	3.4	2.6	4.1	2.5	3.2	2.3	2.3	1.4	2.8	1.6	2.0	2.4	4.0	.9
German	6.2	8.5	12.0	2.8	9.8	1.3	6.5	3.4	8.9	1.8	5.0	.4	18.9	4.6	4.0	14.0
Greek	.2	.7	.2	.1	1.4	1.9	.9	.1	(a)	.4	2.8	1.1	(a)	.5	.0	.0
Irish	7.5	1.6	1.2	7.2	3.3	3.6	3.2	1.5	13.0	4.7	5.5	3.0	4.4	3.3	2.4	1.1
Italian, North	2.2	2.0	2.8	5.6	.8	1.2	4.1	4.4	1.1	2.5	2.6	5.3	.2	4.5	.5	.1
Italian, South	5.5	1.5	3.1	9.1	1.0	1.4	7.2	9.1	2.1	4.5	1.2	8.6	.3	10.1	3.5	.0
Lithuanian	.9	2.6	2.9	.2	.3	.7	1.6	1.3	1.1	1.6	4.4	.0	4.8	.1	.0	1.1
Magyar	.0	2.9	1.7	1.1	3.5	.5	1.2	.3	1.4	1.1	.0	.0	8.5	2.0	.1	.0
Polish	17.7	12.3	4.4	0.9	1.8	7.1	12.4	9.0	10.4	5.3	4.1	37.0	7.6	1.3	1.5	34.9
Russian	.2	1.9	1.2	.2	1.1	.7	1.8	1.9	1.8	1.1	.6	1.8	2.5	1.7	1.2	1.9
Scotch	1.1	.8	.5	.3	2.1	1.2	1.2	.3	1.1	1.0	.8	8.4	1.5	.7	.5	.2
Slovak	.0	3.8	.0	.5	1.7	.1	1.1	3.9	.2	.9	.0	1.0	.7	3.8	.0	.2
Swedish	.0	4.9	16.9	.2	1.8	2.3	3.8	(a)	.9	.7	.5	.0	.2	.1	.2	.0
Other races	1.5	6.2	11.8	2.8	7.4	2.0	4.2	3.7	3.0	1.8	3.5	1.3	4.3	2.8	2.4	6.5
Grand total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total native-born of foreign father	19.0	16.0	18.4	33.5	22.0	26.9	19.8	23.8	24.2	17.3	28.7	9.9	26.0	23.2	25.6	34.4
Total native-born	39.5	45.1	36.9	66.1	51.3	59.9	44.5	57.5	51.4	59.5	58.1	24.1	41.5	61.0	77.8	38.9
Total foreign-born	60.5	54.9	63.1	33.9	48.7	40.1	55.5	42.5	48.6	40.5	41.9	75.9	58.5	39.0	22.2	61.1

a Less than 0.05 per cent.

RACE DISTRIBUTION OF EMPLOYEES IN 16 INDUSTRIES FOR WHOM CERTAIN INFORMATION WAS SECURED, BY INDUSTRY; PERCENTAGES—*Continued*

Female

General Nativity and Race	Carpet manufacturing	Electric supplies manufacturing	Foundry and machine shop products manufacturing	Hosiery and knit goods manufacturing	Paper and wood pulp manufacturing	Paper products manufacturing	Rope, twine, and hemp manufacturing	Sewing machine manufacturing	Typewriter manufacturing
Native-born, of native father:									
White	22.2	30.7	20.6	40.8	38.4	39.6	9.5	32.2	62.2
Negro	.0	.0	.0	(a)	.0	.0	.1	.0	.0
Native-born of foreign father, by country of birth of father:									
Austria-Hungary	1.1	2.1	1.4	1.1	.1	.8	.4	1.2	.5
Canada	7.0	4.2	1.2	1.9	9.4	11.9	4.8	.6	1.9
England	2.6	4.8	1.8	3.6	2.2	3.1	.6	2.9	4.4
Germany	3.6	8.3	12.6	11.5	3.5	6.3	.6	18.4	8.2
Ireland	7.0	15.1	10.8	14.0	17.7	21.7	3.1	27.8	9.9
Russia	1.6	1.6	1.7	1.4	.1	.8	.1	1.0	.0
Scotland	.3	2.7	1.1	.7	1.8	2.5	.9	2.4	.3
Wales	.0	.1	.1	1.6	.0	.6	.0	.4	.8
Other countries	1.9	2.8	3.4	2.1	.8	1.0	.2	2.2	4.1
Foreign-born, by race:									
Bohemian and Moravian	.0	.2	.0	.1	.0	.2	.0	.2	.0
Canadian, French	2.8	2.1	.4	.8	6.5	3.8	6.0	.0	.0
Canadian, Other	.7	6.1	.3	.6	.5	1.9	.2	.0	2.2
Croatian	.0	.1	.0	.0	.0	.0	.0	.0	.0
English	2.1	4.0	1.6	1.6	1.0	1.2	.5	1.4	1.1
German	1.6	1.8	4.4	2.1	.6	.8	.3	3.1	2.2
Greek	.0	.8	1.2	.0	.0	.0	1.7	.0	.0
Irish	3.1	3.5	1.0	2.3	12.0	2.1	2.5	2.0	1.1
Italian, North	.8	.3	1.7	.6	.1	.0	2.0	.0	.3
Italian, South	1.5	.1	1.8	2.0	.0	.0	.9	.2	.3
Lithuanian	.7	.4	2.9	.8	.8	.0	.1	.4	.0
Magyar	.0	.5	.2	.3	.1	.0	.0	.4	.0
Polish	36.5	2.1	22.4	4.5	2.6	.0	48.9	.4	.0
Russian	.8	.5	3.3	.6	.2	.0	2.0	1.0	.0
Scotch	1.0	1.3	.2	.4	1.3	.2	13.6	1.2	.0
Slovak	.0	.0	.6	2.3	.0	.0	.3	.0	.0
Swedish	.0	.7	.5	(a)	.1	.0	.0	.0	.0
Other races	1.1	3.1	2.8	2.3	.2	1.5	.7	.5	.5
Grand total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total native-born of foreign father	25.1	41.7	34.1	37.9	35.6	48.7	10.7	56.9	30.1
Total native-born	47.3	72.4	54.7	78.7	74.0	88.3	20.3	89.2	92.3
Total foreign-born	52.7	27.6	45.3	21.3	26.0	11.7	79.7	10.8	7.7

a Less than 0.05 per cent.

EXTENT OF TRADE-UNION MEMBERSHIP

The extent of trade-union membership in the United States can be only approximated because no single agency, either private or official, attempts to collect statistics of trade-union membership regularly.[3] Recently, however, studies of the extent and the growth of labor organization in the United States by Wolman[4] and by Barnett[5] have provided bases for a very much closer estimate of the actual number of organized wage-workers, and of the proportion they bear to the total number of wage-earners, than has been possible heretofore. Professor Barnett's study includes the year 1914 and its results are summarized briefly below.

Size and Variety of Trade-Union Organization

A grand total of about 2,700,000 members of trade unions in the United States in 1913 and 1914 is indicated. This was the highest figure attained up to that time. In 1897 it was 444,500; in 1905, 1,945,000, and in 1910, 2,138,000. The following table, abridged from Professor Barnett's detailed statistics,[6] shows the membership in 1914 of each union and group of unions, the classifica-

[3] The statistics published annually by the American Federation of Labor cover only those unions which are affiliated with it, and the unions in the Federation are not the same over any given series of years. The New York Department of Labor (now under the New York Industrial Commission) has, since 1906, published annually statistics of American trade-union membership supplementary to the statistics published by the Federation which, since 1911, are probably fairly close approximations.

[4] Leo Wolman: The Extent of Labor Organization in the United States in 1910, Quarterly Journal of Economics, May, 1916.

[5] George E. Barnett: Growth of Labor Organization in the United States, 1897-1914, Quarterly Journal of Economics, August, 1916.

[6] Statistics of membership were obtained by Professor Barnett directly from

tion of unions into groups being very similar to the classification used by the British Board of Trade. The large variety of labor organizations, as well as their distinctiveness along industrial lines, is clearly indicated:

Membership of American Trade Unions, 1914

Building:	
Bricklayers and masons	82,500
Bridge and iron work	13,200
Building laborers	9,800
Carpenters. United	212,200
Cement work	7,300
Ceramic tile layers	3,000
Composition roofers	1,600
Compressed air work	1,000
Electrical work (A. F. of L.)	30,800
Elevator constructors	2,700
Heat and asbestos work	1,000
Hod carriers	25,600
Marble work	4,100
Painters	74,400
Plasterers	18,000
Plumbers	29,700
Sheet metal work	17,800
Slate and tile roofers	600
Wood and metal lathers	6,700
Total in group	542,000

official publications of the unions or from union officials wherever possible. These were supplemented by statistics of affiliated unions taken from the reports of the American Federation of Labor, and by statistics of unaffiliated unions from the reports of the New York Department of Labor.

For an explanation and discussion of the sources of the data and of the methods employed in this compilation, see Barnett, *loc. cit.*, p. 785.

Metal, machinery, and shipbuilding:

Blacksmiths	9,600
Boiler makers	16,700
Carriage work	3,500
Car work	11,000
Chandelier work	400
Cutting die makers	300
Diamond work	300
Engineers, Amalgamated	2,700
Foundry employees	600
Iron, steel and tin work	6,500
Machinists	75,400
Metal polishers	10,000
Metal work, Brotherhood	1,700
Molders	50,000
Pattern makers	6,700
Pocket knife grinders	300
Railway carmen	28,700
Saw smiths	100
Stove mounters	1,100
Wire weavers	300
Total in group	225,900

Textile:

Cloth weavers	5,000
Elastic goring weavers	100
Lace operatives	1,200
Loomfixers	1,600
Machine textile printers	400
Print cutters	400
Spinners	2,200
Textile work	18,000
Wool sorters and graders	1,400
Total in group	30,300

Mining and quarrying:	
Miners, Western Federation	36,900
Mine workers, United	339,000
Quarry work	4,000
Slate work	300
Total in group	380,200
Transportation:	
Commercial telegraphers	1,000
Locomotive engineers	73,800
Locomotive firemen	86,800
Longshoremen	25,000
Maintenance of way employees	6,500
Marine engineers	9,100
Masters, mates, and pilots	5,000
Mechanical trackmen	300
Pavers	1,600
Paving cutters	3,500
Railroad freight handlers	2,900
Railroad signalmen	700
Railroad station agents	1,100
Railroad station employees	4,300
Railroad telegraphers	25,000
Railroad trainmen	126,100
Railway clerks	5,000
Railway conductors	49,100
Seamen	16,000
Steam shovelmen	1,800
Street and electric railway employees	54,500
Switchmen	9,800
Teamsters	51,100
Tunnel constructors	1,700
Total in group	561,700

Clothing:	
Cloth hat and cap makers	3,600
Garment work	60,700
Glove work	1,100
Hatters	9,000
Ladies' garment work	69,900
Straw and ladies' hatters	700
Tailors	12,000
Total in group	157,000
Paper, printing and bookbinding:	
Bookbinders	9,400
Lithographers	2,800
Lithographic press feeders	1,000
Lithographic workmen	500
Machine printers	500
Paper makers	4,400
Photo-engravers	4,700
Poster artists	400
Printing pressmen	19,300
Pulp and paper mill work	3,500
Steel plate printers	1,300
Steel plate transferrers	100
Stereotypers and electrotypers	4,500
Typographical	58,500
Total in group	110,900
Leather:	
Boot and shoe work	38,100
Boot and shoe cutters	700
Leather work on horse goods	1,800
Shoe work, United	14,000
Traveling goods and leather novelty work	900
Total in group	55,500

Lumber and woodworking:	
Box makers and sawyers	12,300
Coopers	4,400
Piano and organ work	1,000
Timber work	2,500
Upholsterers	3,500
Wood-carvers	1,100
Total in group	24,800

Chemical, clay, glass and stone:	
Brick, tile work	3,200
Flint glass work	9,900
Glass bottle blowers	10,000
Glass work, Amalgamated	1,200
Granite cutters	13,500
Potters, operative	7,700
Powder work	200
Stone-cutters	6,000
Window glass snappers	2,200
Window glass work	3,900
Total in group	57,800

Public service:	
Government employees	4,000
Letter carriers	32,200
Post office clerks, Assoc.	25,000
Post office clerks, Fed.	2,800
Railway mail association	12,900
Railway postal clerks	1,500
State, city employees	2,800
Total in group	81,200

Food, liquor and tobacco:

Bakery work	15,700
Brewery work	67,600
Cigarmakers	48,500
Stogie makers	1,400
Tobacco work	3,700
Total in group	136,900

Restaurant and trade:

Butcher work	2,000
Hotel employees	59,000
Hotel work	12,600
Meat cutters	6,200
Retail clerks	15,000
Total in group	94,800

Miscellaneous:

Barbers	34,300
Bill posters	1,400
Broom makers	700
Brush makers	200
Trade and Fed. Unions (A. F. of L.)	27,200
Fur work	800
Horseshoers	5,700
I. W. W. (Chicago)	12,000
I. W. W. (Detroit)	2,000
Laundry work	2,800
Stationary firemen	16,000
Steam engineers	20,300
Total in group	123,400

Theaters and music:	
Musical and theatrical union	6,000
Musicians	60,000
Theatrical stage employees	15,000
White Rats Actors' Union	11,000
Total in group	92,000
Total in all groups	2,674,400

Growth in Union Membership

The annual statistics from 1897 to 1914 have exhibited, in the main, a steady growth. There were, however, several marked variations. It is interesting to note that these variations reflected very closely the changes in business conditions, a loss of membership resulting whenever a depression occurred and an increase in membership whenever a period of prosperity took place. Thus from 1897 to 1904 there was a period of uninterrupted increase in membership from 444,500 to 2,072,600; from 1904 to 1909 the membership was practically stationary, concurrent with business depressions in 1904 and 1907; and from 1909 to 1913 another period of increase in membership and of absence of depressions. It is quite probable that the slight decrease in 1914 has been more than offset in the period of industrial activity which began in the summer of 1915, if we may judge from the reports of the American Federation of Labor and from statements of a number of trade-union officials.

The following table shows for each group the per cent. of the total trade-union membership contained in each group for each of the years 1897, 1900, 1910, and 1914,

the groups being arranged in the order of their importance in 1897:[7]

PER CENT. OF TOTAL MEMBERSHIP IN EACH GROUP OF UNIONS IN THE YEARS 1897, 1900, 1910 AND 1914

	1897	1900	1910	1914
Transportation	26.2	21.9	22.5	21.0
Building	15.2	17.7	21.5	20.3
Metal, machinery and shipbuilding	11.3	9.3	9.2	8.4
Food, liquor and tobacco	9.9	7.6	5.4	5.1
Paper, printing and bookbinding	8.5	5.5	4.2	4.1
Chemical, clay, glass and stone	5.2	3.4	2.8	2.2
Mining and quarrying	4.7	15.1	12.9	14.2
Clothing	3.3	2.9	4.6	5.9
Leather	2.9	0.8	2.1	2.1
Public service	2.5	1.8	2.7	3.0
Textile	1.8	0.9	1.0	1.1
Theaters and music	1.5	1.1	2.8	3.4
Restaurants and trade	1.4	3.2	2.8	3.5
Lumber and woodworking	1.2	3.0	1.3	0.9
Miscellaneous	4.3	5.8	4.4	4.6

It will be noted that the transportation, building and mining groups have contained about half of the total trade-union membership, and over half of the total increase in membership has been in these unions. The groups showing an actual decrease in their relative importance are paper, printing and bookbinding and the chemical, clay, glass, and stone groups; these, however, were already fairly well organized in 1897. The total increase in trade-union membership appeared to be at a much more rapid rate than the increase in population, or in the number of gainfully occupied persons.

Proportion of Workers Organized

The census statistics of occupations do not permit of an accurate separation of "wage-earners" from the total

[7] Barnett, *loc. cit.*, p. 793.

of those who are enumerated as "gainfully employed," but by deducting employers or self-employed and fee-receiving workers (professional), an approximation of the total number of wage-earners is possible. In 1900 there were 21,837,050 such wage-earners and in 1910, 30,267,000. Using these figures and the statistics of trade-union membership for the same years as bases for computation, Professor Barnett has estimated that the trade-union membership was 4 per cent. of the total number of wage-earners in 1900 and 7 per cent. in 1910. In view of the lessened rate of immigration and the increase in union membership in 1915 and 1916, it is very probable that the ratio was considerably higher at the end of 1916 than in 1910.

WOMEN IN INDUSTRY

The proportion of women 10 years of age and over in gainful occupations in the United States increased from 18.3 per cent. in 1900 to 21.2 per cent. in 1910. The largest proportionate increase was in the number engaged in personal and domestic service (explained as due to a change in classification as between the different censuses), followed by an increase of from 10.6 per cent. in trade and transportation to 15.8 between 1900 and 1910. Here opportunities for women have probably increased. In agriculture a substantial increase has occurred—9.4 per cent. to 14.4 per cent. In manufacturing and mechanical pursuits only has a decrease occurred—from 18.5 per cent. to 16.4 per cent. There is not an industry group embraced in the Federal Census report in which

women are not employed. The different branches of industry in which the largest proportion of women were reported in 1910 were as follows:

Paint factories.
Munition and fireworks establishments.
Chemical works.
Soap factories.
Clothing manufacturing.
Corset, glove and hat factories.
Candy factories.
Manufacture of food products.
Wagon and carriage manufacturing.
Leather and leather products manufacturing.
Shoe factories.
Clock and watch and jewelry factories.
Box factories.
Paper products manufacturing.
Printing and publishing.
Cotton, knitting, woolen, lace and embroidery, linen, silk, and carpet mills.
Button factories.
Rubber factories.
Straw factories.
Laundries.

A large part of the office staffs of banks, insurance companies, brokerage offices and real estate firms were composed of girls and women. Slightly more than one-sixth of the total number of persons employed in wholesale and retail trade were female persons. Almost one-half of the workers in professional service, and two-thirds of those in domestic service, were also women and girls. The following table shows the employment of such persons in the United States in 1910, by age groups, and by principal industries:

EMPLOYMENT OF WOMEN IN THE UNITED STATES IN 1910 BY INDUSTRY AND AGE GROUPS

(Compiled from the 1910 Census of Occupations, U. S. Bureau of the Census)

(Industries employing less than 300 women omitted)

Industry Groups	Total females gainfully employed	Per cent. female form of all persons gainfully employed	Age Distribution				
			10 to 13 years	14 to 15 years	16 to 20 years	21 to 44 years	45 years and over
All Occupations	8,075,772	21.2	.....	.....	.....	.....	.....
Agriculture	1,801,255	14.7	250,650	159,213	340,802	717,605	332,985
Animal husbandry	6,812	3.4	212	101	361	3,035	3,103
Extraction of Minerals:							
Coal mines	890	0.1	5	34	214	589	48
Other mines	603	0.1	3	6	128	422	44
Salt mines, wells and factories	443	0.7	.....	19	191	204	29
Manufacturing and Mechanical Industries:							
Building and hand trades	614,570	18.0	605	8,513	89,013	377,194	139,245
Paint factories	1,946	14.3	3	81	815	1,008	39
Powder, cartridge, dynamite, fuse and fireworks factories	3,163	23.6	4	230	1,328	1,495	106
Soap factories	3,929	29.1	3	249	1,937	1,666	74
Other chemical factories	16,816	24.9	18	933	7,148	7,997	720
Brick, tile and terra cotta factories	2,039	1.8	9	142	778	1,004	106
Glass factories	6,346	6.7	39	618	2,988	2,556	145
Lime, cement and gypsum factories	948	1.5	.....	17	255	619	57
Marble and stone yards	891	1.4	1	24	294	519	53
Potteries	5,648	19.1	16	378	2,182	2,721	351
Clothing factories (suits, coats, cloaks and overalls)	110,986	28.9	267	5,858	38,734	55,188	10,939
Clothing factories (except suits, coats, cloaks and overalls)	99,993	68.8	143	4,954	40,950	48,245	5,701
Corset factories	13,386	82.4	6	851	4,851	6,773	905
Glove factories	15,039	66.3	13	730	4,469	7,798	2,029
Hat factories (wool and felt)	11,514	28.2	18	608	3,933	5,825	1,130
Shirt, collar and cuff factories	50,767	72.4	249	3,308	18,342	25,069	3,799
Bakeries	17,967	12.4	52	1,080	6,121	8,090	2,624
Butter and cheese factories	1,748	6.4	1	28	565	1,022	132
Candy factories	20,648	48.4	108	2,582	10,347	7,209	402
Fish curing and packing	1,360	15.0	22	67	419	682	170
Flour and grain mills	1,559	2.9	4	25	380	1,040	110
Fruit and vegetable canning	4,926	31.7	20	355	1,834	2,111	606
Slaughtering and packing houses	5,717	6.5	17	205	2,342	2,891	262

Sugar factories and refineries	515	3.1	2	14	199	269	31
Other food factories	8,774	25.1	126	547	3,450	3,977	674
Agricultural implement factories	1,608	4.3	2	30	523	1,001	52
Automobile factories	3,784	3.6	1	59	1,407	2,210	107
Blast furnaces and steel rolling mills	6,764	1.7	10	227	2,223	4,053	251
Car and railroad shops	972	0.8	.....	22	286	588	76
Iron foundries	2,664	1.6	4	76	977	1,498	109
Ship and boat building	382	0.6	.....	5	121	233	23
Wagon and carriage factories	2,673	32.0	1	70	910	1,550	142
Other iron and steel factories	33,119	6.0	38	1,572	13,600	16,813	1,096
Harness and saddle factories	1,176	3.5	5	49	389	639	94
Leather belt, case and pocket book factories	3,974	22.1	14	333	1,762	1,717	148
Shoe factories	68,549	31.5	93	3,777	24,004	35,787	4,888
Tanneries	2,903	4.6	6	174	1,231	1,374	118
Trunk factories	809	10.5	4	78	374	327	26
Breweries	1,467	2.1	4	92	580	711	80
Distilleries	1,538	13.9	4	60	707	732	35
Other liquor and beverage factories	1,179	5.6	2	41	435	616	85
Box factories (wood)	2,325	13.0	35	234	995	970	91
Furniture factories	7,889	4.9	58	346	2,418	4,173	894
Piano and organ factories	2,769	7.3	4	144	1,279	1,260	82
Saw and planing mills	3,643	0.8	29	144	1,067	2,132	271
Other wood-working factories	9,045	7.8	73	689	3,612	3,674	997
Brass mills	3,844	7.1	3	199	1,591	1,930	121
Clock and watch factories	8,717	33.5	3	214	3,017	5,001	482
Gold and silver factories	2,945	14.7	3	150	1,077	1,496	219
Jewelry factories	9,765	26.4	12	549	3,582	5,230	392
Lead and zinc factories	734	4.3	2	35	296	363	38
Tin plate factories	815	3.6	1	51	375	368	20
Tin-ware and enamel-ware factories	5,778	7.9	39	495	2,980	2,120	144
Box factories (paper)	14,324	62.3	55	1,836	7,017	4,976	440
Blank book, envelope, tag, etc., factories	8,891	46.2	16	568	4,100	3,971	236
Paper and pulp mills	13,965	15.4	16	614	5,147	7,006	1,182
Printing and publishing establishments	76,676	21.6	66	2,457	27,998	42,472	3,683
Carpet mills	14,788	36.7	9	681	5,275	7,519	1,304
Cotton mills	148,268	41.3	5,440	14,816	50,796	67,924	9,292
Hemp and jute mills	2,852	40.3	2	167	1,384	1,182	117
Knitting mills	71,907	66.6	922	7,279	29,358	30,569	3,779
Lace and embroidery mills	17,187	68.1	75	1,318	6,286	7,917	1,591
Linen mills	1,655	47.3	3	140	624	739	149
Rope and cordage factories	4,463	35.1	26	418	2,075	1,738	206
Sail, awning and tent factories	1,303	24.1	1	50	328	741	183
Saw mills	53,844	55.9	284	6,153	23,573	22,204	1,630
Textile dyeing, finishing and printing mills	7,981	18.7	17	427	2,894	4,173	470

EMPLOYMENT OF WOMEN IN THE UNITED STATES IN 1910 BY INDUSTRY AND AGE GROUPS—*Continued*

(Compiled from the 1910 Census of Occupations, U. S. Bureau of the Census)

(Industries employing less than 300 women omitted)

Industry Groups	Total females gainfully employed	Per cent. female form of all persons gainfully employed	Age Distribution				
			10 to 13 years	14 to 15 years	16 to 20 years	21 to 44 years	45 years and over
Woolen and worsted mills	55,729	40.3	130	4,396	20,231	27,378	3,594
Broom and brush factories	2,710	1.6	4	206	1,118	1,243	139
Button factories	5,681	37.3	29	556	2,625	2,225	246
Cigar and tobacco factories	79,486	4.1	881	5,518	29,699	37,828	5,560
Electric light and power plants	2,995	4.3	2	36	1,002	1,889	66
Electrical supply factories	18,255	2.1	14	696	8,683	8,654	208
Gas works	2,117	4.0	.....	14	482	1,560	61
Oil refineries	880	3.0	2	16	279	549	34
Rubber factories	13,897	24.0	15	818	5,113	7,368	583
Straw factories	4,227	58.5	5	177	1,124	2,255	666
Transportation:							
Water transportation	1,626	0.7	.....	8	264	1,094	260
Construction and maintenance of streets, roads, sewers and bridges	509	0.2	1	2	57	281	168
Electric and street railways	2,409	1.3	2	16	557	1,665	169
Livery stables	468	0.3	.....	2	69	272	125
Truck, transfer and cab and hack companies	2,147	0.6	1	24	614	1,320	188
Steam railroads	21,754	1.4	6	116	5,233	14,836	1,563
Express companies	1,652	3.1	.....	16	532	1,039	65
Post	19,078	11.2	6	83	3,081	12,612	3,296
Telegraph and telephone	109,623	40.8	144	2,270	49,739	55,285	2,185
Trade:							
Banking and brokerage	23,159	11.0	1	105	5,306	16,521	1,226
Insurance	27,828	18.2	4	117	6,810	19,320	1,577
Real estate	16,137	10.6	4	110	4,620	9,788	1,615
Wholesale and retail trade	606,243	17.0	1,102	17,641	178,500	351,908	57,092
Grain elevators	460	2.8	1	3	114	320	22
Warehouses and cold-storage plants	1,647	6.8	1	30	551	934	131
Public and Professional Service:							
Public service (not elsewhere classified)[8]	23,577	4.4	1	41	2,620	17,225	3,690
Professional service	779,324	45.5	249	1,788	128,362	569,523	79,402
Domestic and Personal Service:							
Domestic and personal service (except laundries)	2,463,413	67.7	23,456	61,531	445,655	1,370,053	562,718
Laundries	83,306	53.5	203	2,871	25,871	45,518	8,843

[8] Under public service are classified only those public employees who could not occupationally be better classified elsewhere.

THE EMPLOYMENT OF CHILDREN

The latest available statistics as to the extent to which children under 16 years of age were gainfully employed are contained in the Federal Census of 1910. According to these reports there were 1,990,225 children of both sexes between the ages of 10 and 15 years who were gainfully employed at the time the information was gathered. They constituted almost 12 per cent. of all persons gainfully employed in agricultural pursuits and slightly more than 2 per cent. of those in other gainful pursuits than agricultural.

Of all the children gainfully employed, 895,946 were less than 14 years of age. Of those between the ages of 10 and 13 years, 609,030 were boys and 286,946 girls. . Almost 17,000 boys under 16 were working in coal and iron ore mines and quarries, of which number about 2,200 were between the ages of 10 and 13 years. The industries in which children under 16 were employed in the greatest numbers were clothing, shoe factories, bakeries, candy, hat, collar, shirt and cuff factories, slaughtering and meat-packing houses, blast furnaces and steel mills, saw and planing mills, printing and publishing establishments, cotton mills, telegraph and telephones, banking and brokerage offices, cigar and tobacco factories, silk, knitting, and woolen mills. By far the greatest number of children were at work in mercantile establishments and textile mills. The following table shows in a summary way the extent to which children were employed in 1910 by age, sex, and industry:

EMPLOYMENT OF CHILDREN IN THE UNITED STATES IN 1910 UNDER 16 YEARS OF AGE, BY SEX, INDUSTRY, AND AGE GROUPS—(Compiled from the Reports of the United States Census Bureau)

Industry and Occupation	Children 10 to 15 years of age engaged in gainful occupations; 1910							
	Total							
	Both sexes				10 to 13 years		14 to 15 years	
	Number	Per cent. children 10 to 15; form of all persons gainfully employed	Boys	Girls	Boys	Girls	Boys	Girls
All Occupations	1,990,225	....	1,353,139	637,086	609,030	286,946	744,109	350,140
Agricultural pursuits	1,425,362	11.6	1,015,499	409,863	546,801	250,650	468,698	159,213
Non-agricultural pursuits	564,863	2.2	337,640	227,223	62,229	36,296	276,411	190,027
Forestry	2,376	1.3	2,373	3	672	2	1,701	1
Coal mines	15,505	2.3	.....	.....	1,808	5	13,658	34
Iron mines	873	1.5	870	3	258	.....	612	3
Quarries	1,344	1.4	1,341	3	224	.....	1,117	3
Building and hand trades	32,665	1.0	23,547	9,118	4,403	605	19,144	8,513
Brick, tile and terra cotta factories	3,012	2.6	2,861	151	597	9	2,254	142
Glass factories	5,416	5.7	4,759	657	410	39	4,349	618
Lime, cement, and gypsum factories	612	0.9	595	17	88	.....	507	17
Potteries	961	3.3	567	394	47	16	520	378
Marble and stoneyards	394	0.6	369	25	27	1	342	24
Clothing industries	23,271	....	6,266	17,005	417	696	5,849	16,309
Clothing factories (except suits, coats, cloaks, and overalls)	5,897	4.1	800	5,097	30	143	770	4,954
Corset factories	951	5.9	94	857	1	6	93	851
Glove factories	979	4.3	236	743	7	13	229	730
Hat factories (wool and felt)	1,230	3.0	604	626	11	18	593	608
Shirt, collar, and cuff factories	4,280	6.1	723	3,557	46	249	677	3,308
Bakeries	3,690	2.5	2,558	1,132	252	52	2,306	1,080
Candy factories	3,511	8.2	821	2,690	52	108	769	2,582
Fruit and vegetable canning	586	3.8	211	375	29	20	182	355
Slaughter and packing-houses	1,286	1.5	1,064	222	68	17	996	205
Automobile factories	1,138	1.1	1,078	60	20	1	1,058	59
Blast furnaces and steel rolling mills	3,986	1.0	3,749	237	270	10	3,479	227
Car and railroad shops	760	0.6	738	22	34	.....	704	22
Iron foundries	1,860	1.1	1,780	80	123	4	1,657	76
Wagon and carriage factories	1,222	1.5	1,151	71	122	1	1,029	70
Harness and saddle factories	532	1.6	478	54	36	5	442	49

Leather belt, leather case and pocketbook factories	728	4.0	381	347	6	14	375	333
Shoe factories	9,426	4.3	5,556	3,870	177	93	5,379	3,777
Tanneries	941	1.5	761	180	48	6	713	174
Trunk factories	371	4.8	289	82	17	4	272	78
Breweries	780	1.1	684	96	32	4	652	92
Other liquor and beverage factories	662	2.1	555	107	73	6	482	101
Box factories (wood)	1,213	6.7	944	269	195	35	749	234
Furniture factories	4,158	2.6	3,754	404	428	58	3,326	346
Piano and organ factories	1,007	2.7	859	148	18	4	841	144
Saw and planing mills	10,980	2.4	10,807	173	2,827	29	7,980	144
Other woodworking factories	4,427	3.8	3,665	762	700	73	2,965	689
Brass mills	1,195	2.2	993	202	23	3	970	199
Clock and watch factories	630	2.4	413	217	3	3	410	214
Gold and silver factories	548	2.7	395	153	7	3	388	150
Jewelry factories	1,460	4.0	899	561	19	12	880	549
Tinware and enamelware factories	2,187	2.9	1,653	534	99	39	1,554	495
Box factories (paper)	2,342	10.2	451	1,291	22	55	429	1,836
Blank book, envelope, tag, paper bag, etc. factories	945	4.9	361	584	15	16	346	563
Paper and pulp mills	1,519	1.7	889	630	30	16	859	614
Printing and publishing establishments	12,104	3.4	9,581	2,523	556	66	9,025	2,457
Carpet mills	1,490	3.7	800	690	25	9	775	681
Cotton mills	41,076	11.4	20,820	20,256	6,371	5,440	14,449	14,816
Knitting mills	11,364	10.5	3,163	8,201	631	922	2,532	7,279
Lace and embroidery mills	1,836	7.3	443	1,393	8	75	435	1,318
Rope and cordage factories	786	6.2	342	444	23	26	319	418
Silk mills	9,299	9.7	2,862	6,437	149	284	2,713	6,153
Textile, dyeing, finishing and printing mills	1,520	3.6	1,076	444	44	17	1,032	427
Woolen and worsted mills	8,121	5.9	3,595	4,526	140	130	3,456	4,396
Broom and brush factories	656	4.0	446	210	41	4	405	206
Button factories	1,051	6.9	466	585	30	29	436	556
Charcoal and coke works	525	2.1	520	5	144	3	376	2
Cigar and tobacco factories	10,566	5.4	4,167	6,399	962	881	3,205	5,518
Electric supply factories	2,087	2.3	1,377	710	24	14	1,353	696
Rubber factories	1,816	3.1	983	833	17	15	966	818
Water transportation	822	0.4	814	8	113	.....	701	8
Construction and maintenance of streets, roads, sewers and bridges	1,460	0.6	1,457	3	286	1	1,171	2
Livery stables	2,368	1.7	2,366	2	515	.....	1,851	2
Truck, transfer, cab, and hack companies	3,350	0.9	3,325	25	398	1	2,927	24
Steam railroads	7,197	0.5	7,075	122	812	6	6,263	116
Telegraph and telephone	8,098	3.0	5,684	2,414	634	144	5,050	2,270
Banking and brokerage	1,774	0.8	1,668	106	72	1	1,596	105
Insurance	909	0.6	788	121	27	4	761	117
Real estate	688	0.5	574	114	32	4	542	110
Wholesale and retail trade	102,471	2.9	83,728	18,743	20,987	1,102	62,741	17,641

II

WAGES AND EARNINGS

For the purpose of ascertaining the economic status of wage-earners, statistics of wage rates are useful only in the sense that they afford data as to the maximum possible earnings of workers in various occupations, industries and localities. The loss of working time is so considerable and so variable a factor in different occupations and industries, as will be pointed out in a later chapter, that statistics of weekly full-time earnings, or weekly wage rates, or even of actual weekly earnings, can not be employed to indicate the condition of labor from the standpoint of its economic advantages or disadvantages, unless the extent of the actual opportunity to receive wages regularly be taken into consideration. Statistics of annual earnings, therefore, are a far more accurate method of measuring the real advantages which individual wage-earners obtain from their wages. Since the family is the natural economic unit, however, the adequacy of the individual wage-earner's earnings must be interpreted in terms of the amount necessary to support a family under varying conditions of community environment. Statistics of family income must be regarded as the most accurate and complete index of the economic status of the wage-working population of any locality or in any industry.

With this very general statement concerning the value of the different forms of wage statistics, it is purposed in the following pages to present a brief summary of the recent statistics of weekly wage rates and weekly earnings of adult wage-workers, and such statistics of actual annual earnings as are available. No attempt is made to include statistics of hourly or daily wage rates, or computations made from them; nor has it been deemed advisable to include the results of various general computations of annual earnings from hourly, daily, or weekly wage rates or earnings, since the factor of loss of time is not an accurately determinable one. The following summary is thus confined to the published statistics of weekly wage rates and to the results of investigations which have afforded data relating to weekly and annual earnings. In a later chapter similar data regarding family income are presented.

Weekly Wages of Male Workers

Taking all the principal industries, for which data are available, into consideration, the conclusion appears to be warranted that during the past few years between one-fifth and one-third of the male workers 18 years of age and over earned at rates of less than $10 a week, between two-thirds and three-fourths earned less than $15, and only about 10 per cent. earned more than $20 a week.

This does not take into consideration time lost from any cause, altho some of the statistics upon which this

conclusion is based specify actual weekly earnings, while other statistics afford data as to weekly full time earnings, or weekly rates of pay. The conclusion has been stated in terms of sufficient latitude to allow for these considerations.

The Federal Immigration Commission's data for 220,390 male employees in representative establishments in industrial localities showed that 32 per cent. earned less than $10; 75 per cent. less than $15, and 93 per cent. less than $20 a week, the average being $12.64. These percentages are for both foreign and native-born workers, the latter constituting about 60 per cent. of the total 220,390 individuals, but they are not greatly affected by the slight predominance of foreign-born employees. It will be seen that the average percentage of all employees earning less than the specified amounts is very nearly the average of the percentage for both nativity groups in every instance. Foreign-born workers, however, appeared to be lower in the industrial scale than native-born, as shown in the following summary of the Immigration Commission's figures:

WEEKLY EARNINGS OF MALE WORKERS 18 YEARS OF AGE AND OVER, BY NATIVITY GROUPS. (Per Cent.)

	Foreign born	Native born	Total
Under $10	36	25	32
Under $15	80	65	75
Under $20	95	88	93
Number	139,610	80,780	220,390

The percentage for total employees shown by the regular State reports of New Jersey, Massachusetts,

Kansas and Ohio, while depicting rates of wages rather than actual weekly earnings in specific sections of the country, tend to corroborate the earlier data from the Immigration Commission's reports for all the principal industrial sections in the United States. The state figures are given in the following tabulation along with the totals from the Immigration Commission's report:

WEEKLY EARNINGS OF MALE EMPLOYEES IN ALL INDUSTRIES [1]

Weekly Earnings	Per cent. earning specified amounts or rates				
	Immigration Commission Reports, 1908-1909	New Jersey State Report, 1913	Massachusetts State Report, 1913	Kansas State Report, 1912	Ohio State Report, 1914
Under $10 ..	32	30	25	17	12
Under $15 ..	75	68	65	63	57
Under $20 ..	93	89	88	86	*a*
Total number	220,390	259,341	446,530	54,178	573,245*b*

a Seventy-six per cent. under $18 per week and 94 per cent. under $25 per week.

b Exclusive of bookkeepers, stenographers, office help, and salesmen.

The Ohio report, which is one of the most comprehensive statistical presentations of wage statistics of its kind, included data for employees in every industry within that state in which three or more establishments reported and 200 or more wage-earners were represented. It showed that 11.7 per cent. of male wage-earners 18 years of age or over worked for less than $10 a week, 29.6 per cent. for less than $12, 56.9 per

[1] The age limits in the various reports differ slightly. The Immigration Commission and the Massachusetts and Ohio reports are for males 18 years of age and over, and the New Jersey and Kansas reports are for male employees 16 years of age and over.

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cent. for less than $15, 76.0 per cent. for less than $18, and 94.1 per cent. for less than $25 a week.

The wage data for the 573,245 male wage-earners 18 years of age or over are briefly summarized below:

CLASSIFIED RATES OF WAGES OF MALE WAGE-EARNERS 18 YEARS OF AGE OR OVER IN OHIO, 1914

Rate of Wages per Week	Number of adult male wage-earners at each classified rate	Per cent. distribution
Less than $6	5,904	1.1
$6 but under $7	5,696	1.0
7 but under 8	8,588	1.5
8 but under 9	13,571	2.4
9 but under 10	32,794	5.7
10 but under 12	102,460	17.9
12 but under 15	156,260	27.3
15 but under 18	109,225	19.1
18 but under 25	103,545	18.1
25 but under 35	28,814	5.0
35 or over	6,388	1.1
Total	573,245	100.0

The classified rate of wages occurring more frequently than any other is $12 but under $15 per week, at which rate 156,260, or 27.3 per cent. of the total number, work. The rate second in importance is $15 but under $18 per week, at which rate 109,225, or 19.1 per cent. of the total number, are employed. Combining the groups it will be seen that 258,720, or 45.2 per cent. of the total number, work for $10 but under $15 per week, and that 212,770, or 37.2 per cent. of the total number, work for $15 but under $25 per week.[2]

The recent investigations of the New York Factory Investigating Commission found that in four industries

[2] Bulletin of the Industrial Commission of Ohio: Rates of Wages, Hours of Labor, and Fluctuation of Employment in Ohio in 1914, p. 8.

—confectionery, paper box and shirt factories and retail stores—more than three-fifths of the male workers received less than $15 per week when working full time.[3]

In the following table is presented a compilation of statistics from recent official sources showing the proportion of male workers earning under specified amounts weekly. Some of these data represent actual earnings; others, full time weekly rates of pay:[4]

[3] H. B. Woolston: Wages in New York; *Survey*, Feb. 6, 1915, p. 505.

[4] The foregoing statistics were compiled from the following reports and publications. The age limits used in the various sources are also indicated below:

Census—Report on manufactures, 1905 (16 years and over).

Conditions of employment in the iron and steel industry in the United States. 62d Cong., 1st Sess., Senate Doc. No. 110. 1913. Vol. III.

Fitch, John. The steel workers, 1910.

Kansas—Department of labor and industry: Annual report for 1913 (16 years and over).

Kennedy, J. C. Wages and family budgets in the Chicago stock yards district, 1914. (Men.)

Massachusetts Bureau of statistics: Annual report on the statistics of manufactures for the year 1913. (18 years and over.)

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WEEKLY WAGES OF MALE EMPLOYEES

Industry	Number	Per cent. earning under specified amounts			
		$6	$10	$15	$20
Agricultural implements:					
New Jersey report	621	3.9	34.3	78.7	94.2
Massachusetts report	585	1.5	23.6	76.9	94.5
Kansas report	79	1.3	6.3	69.6	88.6
Census report, 1905	30,679	8.3	48.0	82.6	96.3
Immigration Commission	21,104	....	20.7	66.0	96.4
Boots and shoes:					
New Jersey report	2,536	9.5	34.5	67.4	88.6
Massachusetts report	56,520	1.2	13.5	44.8	76.4
Census report, 1905	59,142	12.0	40.5	74.7	93.0
Immigration Commission	9,906	....	30.7	70.5	96.1
Boxes:					
New Jersey Report	1,289	11.3	41.7	76.6	94.9
Massachusetts report:					
Fancy and paper	1,518	1.1	15.9	68.5	91.9
Wooden packing	3,628	1.4	25.7	86.1	97.2
Kansas report	412	1.2	28.6	76.8	89.8
New York Factory Investigating Commission	2,194	10.0	40.0	71.1	91.4
Woman and Child Wage-earners:					
Cigar boxes	292	10.3	38.2	....	....
Paper boxes	809	6.1	37.0	....	....
Census report, 1905:					
Cigar boxes	1,361	21.1	61.0	92.4	98.8
Fancy and paper	5,484	19.6	53.5	85.2	96.4
Canneries:					
Massachusetts report	1,353	4.1	22.7	75.8	95.8
Kansas report	47	....	76.6	91.5	95.7
Woman and Child Wage-earners:					
Fruits and vegetables	355	2.0	44.8	....	....
Oysters	152	51.3	83.6	....	....
Census report, 1905:					
Fish	5,557	5.3	31.8	70.5	89.5
Fruits and vegetables	16,717	18.9	63.9	91.7	98.4
Oysters	213	61.0	82.7	96.7	100.0
Cigars and tobacco:					
New Jersey report	2,283	7.8	41.6	76.6	91.4
Massachusetts report	3,235	2.3	6.9	24.5	54.6
Kansas report	123	17.1	29.3	70.7	99.2
Woman and Child Wage-earners:					
Cigars	4,465	5.4	21.4	....	....
Cigarettes	460	8.7	45.0	....	....
Tobacco and snuff	2,597	29.3	80.2	....	....
Census report, 1905:					
Cigars and cigarettes	46,680	15.5	40.2	78.3	95.0
Tobacco, chewing and smoking, and snuff	8,703	45.5	83.2	96.0	99.1

WEEKLY WAGES OF MALE EMPLOYEES—*Continued*

Industry	Number	Per cent. earning under specified amounts			
		$6	$10	$15	$20
Clothing:					
New Jersey report	632	6.2	33.9	68.5	88.4
Massachusetts report—Men's	3,338	0.6	8.9	44.7	75.8
Massachusetts report—Women's	1,641	0.9	9.9	29.0	60.7
Kansas report	45	4.4	33.3	68.9	86.7
Woman and Child Wage-earners:					
Shirts, overalls and underwear, 1910	502	17.1	59.8	....	....
1911 report	5,503	19.6	52.1	....	....
Wages, etc., in dress and waist industry in New York City, 1913:					
Week workers	914	2.2	16.6	a 61.7	89.4
Piece-workers	1,511	2.7	9.1	a 33.3	55.7
Census report, 1905:					
Men's	19,095	10.2	35.8	68.9	88.1
Women's	13,205	6.3	31.6	66.0	84.3
Confectionery:					
New Jersey report	307	12.7	59.9	82.7	94.5
Massachusetts report	2,070	1.8	44.1	77.0	92.6
Kansas report	449	13.1	35.9	69.3	91.1
New York Factory Investigating Commission, 1914	2,465	10.9	51.9	84.1	95.1
Woman and child wage-earners	1,460	15.7	50.4	....	....
Census report, 1905	7,595	16.4	54.6	82.6	94.8
Copper mining and smelting:					
Immigration Commission	6,797	....	8.3	67.1	97.0
Corsets:					
New Jersey report	232	9.9	33.2	59.5	86.6
Massachusetts report	307	2.6	21.8	48.5	80.5
Woman and child wage-earners	451	1.3	18.6	....	....
Census report, 1905	523	8.2	26.4	65.9	83.9
Cotton goods:					
New Jersey report:					
Cotton goods	2,210	3.2	50.3	86.7	94.6
Finishing and dyeing	3,580	6.5	71.4	89.0	95.4
Massachusetts report:					
Cotton goods	59,181	3.5	51.2	88.8	95.4
Cotton small wares	369	2.4	36.0	76.4	93.0
Woman and child wage-earners:					
New England group	6,492	32.0	71.8	....	....
Southern group	9,439	48.4	90.1	....	....
Report on Lawrence strike, 1912	2,568	6.2	59.3	93.8	95.8
Census report, 1905	95,025	31.2	76.2	95.7	98.7
Furniture:					
Massachusetts report	7,841	3.0	24.8	72.5	91.9
Kansas report	386	14.0	47.7	83.4	97.9
Census report, 1905	53,715	12.4	53.8	86.4	97.5
Immigration Commission	3,157	....	30.1	83.9	98.0

WEEKLY WAGES OF MALE EMPLOYEES—*Continued*

Industry	Number	Per cent. earning under specified amounts			
		$6	$10	$15	$20
Glass:					
New Jersey report:					
Cut tableware	450	18.2	46.0	75.0	94.0
Mirrors	135	4.4	34.1	65.9	92.6
Window glass and bottles	6,998	5.0	49.2	52.3	75.5
Massachusetts report:					
Glass cutting, staining and ornamenting	243	3.3	19.8	52.2	88.5
Kansas report:					
Glass factories	624	2.7	17.1	52.9	61.1
Woman and child wage-earners	1,840	32.5	95.0	....	....
Census report, 1905	31,510	14.3	42.3	66.6	77.5
Immigration Commission:					
Bottles	3,038	....	37.6	63.1	74.9
Plate glass	3,261	....	41.0	78.9	96.7
Tableware	1,858	....	30.7	58.7	78.9
Window glass	1,432	....	17.9	55.5	78.8
Hosiery and knit goods:					
New Jersey report	1,478	5.8	28.0	64.1	77.0
Massachusetts report	2,950	3.4	40.4	79.8	91.9
Woman and child wage-earners	2,218	7.1	46.8	....	....
Census report, 1905	11,558	19.1	68.9	91.5	97.3
Iron and steel:					
New Jersey report:					
Bar	1,534	2.0	44.5	80.4	92.3
Forging	2,834	0.6	31.0	65.2	89.9
Structural	4,714	1.0	26.7	67.5	82.1
Massachusetts report:					
Steel works and rolling mills	3,549	0.2	8.0	55.9	89.3
Census report, 1905:					
Blast furnaces	23,796	4.4	27.3	85.2	96.8
Rolling mills	117,374	5.9	43.3	77.1	89.8
Immigration Commission	77,280	....	23.6	66.3	87.3
Leather:					
New Jersey report:					
Leather	6,817	2.5	25.8	69.5	88.3
Leather goods	592	21.3	44.6	81.1	94.4
Massachusetts report:					
Tan, curried and finished	11,618	0.5	27.0	76.0	93.5
Leather goods	311	3.5	29.6	64.0	91.0
Census report, 1905:					
Tan, curried and finished	38,293	8.8	55.3	91.4	98.3
Leather goods	1,752	16.9	49.5	79.2	94.2
Immigration Commission	10,912	....	44.0	90.0	98.9
Mining—Iron ore:					
New Jersey report	1,219	5.4	47.4	94.7	99.3
Immigration Commission	7,748	....	16.1	75.2	98.3

WEEKLY WAGES OF MALE EMPLOYEES—*Continued*

Industry	Number	Per cent. earning under specified amounts			
		$6	$10	$15	$20
Paper and wood pulp:					
New Jersey report	3,770	2.2	39.1	78.9	91.3
Massachusetts report	10,281	0.1	16.9	76.3	93.2
Kansas report	211	6.6	36.0	83.4	94.3
Massachusetts Bureau of Statistics, 1914	9,256	2.7	21.3	74.3	....
Census report, 1905	31,735	6.7	51.5	86.9	96.7
Pottery:					
Woman and child wage-earners	1,465	7.8	30.2	....	....
Census report, 1905	21,838	8.6	53.5	84.3	94.0
Printing and bookbinding:					
New Jersey report	1,117	11.7	31.3	53.0	....
Massachusetts report	4,538	2.0	12.4	37.3	....
Kansas report	1,578	10.9	26.7	51.3	....
Census report, 1905:					
Bookbinding	4,830	15.8	40.4	66.7	90.2
Silk:					
New Jersey report:					
Silk—Broad and ribbon	11,085	6.0	24.3	64.2	92.3
Silk dyeing	5,130	0.9	23.5	85.8	95.0
Silk throwing	550	17.6	64.2	77.3	86.4
Massachusetts report:					
Silk and silk goods including throwsters	1,304	2.6	25.2	78.5	95.5
Census report, 1905	9,888	17.4	46.9	80.5	95.9
Immigration Commission:					
Silk goods	3,077	....	27.7	71.2	94.2
Silk dyeing	1,003	....	3.1	93.1	97.4
Slaughtering and meat packing:					
Massachusetts report	3,393	....	17.2	80.5	94.9
Kansas report	10,311	1.1	25.2	80.2	95.0
Kennedy, J. C., Wages and Family Budgets in the Chicago Stock Yards District, 1914:					
October, 1910—good season	7,096	....	39.5	83.0	95.9
March and April, 1910—a duller period	5,762	....	60.3	86.6	95.6
Census report, 1905	30,824	7.0	37.4	86.7	97.6
Woolen and worsted goods:					
New Jersey report	7,116	3.8	43.9	79.9	93.6
Massachusetts report	31,317	0.7	41.5	81.5	96.8
Woman and child wage-earners	5,147	7.5	50.7	....	....
Strike of textile workers in Lawrence, 1912	8,507	5.6	55.6	67.8	92.2
Census report, 1905:					
Woolen goods	27,202	10.3	65.1	93.6	98.5
Worsted goods	21,243	15.4	56.1	88.6	98.2
Immigration Commission	20,846	....	51.8	88.6	98.7

Wages of Workers of Different Races.—Investigations of wages agree in showing that workers of certain races, or racial groups, on an average, work for less wages than do other workers. The Immigration Commission, for example, found that, taking all the workers in various industries according to race, some of the more striking differences in average weekly wage were as follows:

General Nativity and Race	Average weekly earnings
Native-born of native father (white)	$14.37
Native-born of foreign father	13.91
Total native-born	13.89
Foreign-born	11.92
Older Immigration; for example:	
Canadian, French	10.62
English	14.13
Finnish	13.27
German	13.63
Irish	13.01
Scotch	15.24
Welsh	22.02
Newer Immigration; for example:	
Croatian	11.37
Russian, Hebrew	12.71
Italian, North	11.28
Italian, South	9.61
Lithuanian	11.03
Polish	11.06
Russian	11.01
Slovak	11.95
Grand Total	12.64

Altogether, however, the racial differences shown above are surprizingly slight. The theory that workers of certain races are inherently much inferior to workers of certain other races does not appear to be sub-

stantiated, especially when other facts are taken into consideration. In fact, from an examination of the available data the general statement seems to be warranted that, while racial characteristics doubtless have some effect in determining the efficiency of immigrant workers in American industry, industrial opportunity appears to be the principal determinant. The more closely similar the language and previous industrial training of the immigrants of any race, not to mention other factors, are to the language and industrial requirements in this country, the greater will be their industrial opportunity. The longer they have been in this country the greater is their opportunity. Both factors are indicated in the statistics for all races of the older immigration as contrasted with races of the newer immigration and were clearly indicated by the Immigration Commission's figures. The wages of immigrant workers are found to differ according to race also because there is often a predominance of the immigrants of a certain race in a given industry where wages are extraordinarily low; the average weekly wage rates for this race may thus appear lower than for another race whose racial characteristics are very similar. "One of the most striking facts indicated by a comparison of the earnings of races in the different industries is that earning ability is more the outcome of industrial opportunity or conditions of employment than of racial efficiency and progress," said the Immigration Commission. This fact becomes evident when the average weekly earnings of the members of a race or of several races in the cotton

or woolen or worsted goods industry are compared with the earnings of the same race or races in other industries. The Lithuanians, for example, were found to earn an average of $12.24 weekly in the manufacture of agricultural implements and vehicles; $11.60 in clothing; $13.60 in copper mining and smelting; $9.87 in furniture; $12.89 in iron and steel; $11.98 in iron ore mining; $9.50 in leather; $12.85 in oil refining; $10.87 in shoes; $10.67 in sugar refining, but only $7.86 in cotton and $7.97 in woolen and worsted goods manufacturing.[5]

Wages in Various Industries.—Just as statements of average wages do not accurately portray real conditions, so statements of wages for a large number of industries do not give an adequate idea of a large proportion of workers whose economic status is thus hidden in general conclusions. As the accompanying table, compiled from the reports of the Immigration Commission, indicates, there are wide differences in the levels of wages in different industries. These differences are corroborated by the large number of special reports of recent investigations as shown in the table on p. 41.

While in the majority of the principal industries of the country it has been found that a large proportion—from one-third to two-thirds, and in some cases an even greater proportion—of male employees earned weekly wages of between $10 and $15, there were also found noteworthy variations in the proportions earning above and below this range. One-third of the wage-earners,

[5] Reports, Vol. I, pp. 387-388.

PER CENT. OF MALE EMPLOYEES 18 YEARS AND OVER, EARNING UNDER SPECIFIED WEEKLY AMOUNTS AND OVER $25 PER WEEK, BY INDUSTRY AND GENERAL NATIVITY GROUPS

(Compiled from Reports of the U. S. Immigration Commission, Vols. 19 and 20)

Industry	Total number employees included	Average weekly earnings	Per cent. earning weekly amounts		Per cent. earning more than $25 per week
			Under $10	Under $15	
Agricultural Implements	21,104	$13.09	28	68	*a*
Boots and shoes	9,906	12.11	31	70	1
Clothing	9,339	13.30	23	74	2
Copper mining and smelting	6,797	13.57	8	67	1
Cotton goods	30,607	9.68	62	74	*a*
Furniture	3,157	11.67	30	84	*a*
Glass: Bottles	3,038	15.73	37	79	19
Plate	3,261	12.07	41	56	1
Tableware	1,858	14.20	30	63	6
Window	1,432	15.11	18	59	9
Iron and steel	77,280	14.35	23	66	6
Iron ore mining	7,748	12.72	16	75	*a*
Leather	10,912	10.64	44	90	*a*
Oil refining	2,942	13.81	27	60	2
Silk dyeing	1,003	12.13	3	93	*a*
Silk goods	3,077	12.50	28	75	1
Sugar refining	5,656	11.82	25	85	*a*
Woolen and worsted	20,846	10.49	52	89	*a*
Nativity Groups					
Foreign-born	139,610	11.92	36	80	2
Native-born	80,780	13.89	25	65	5
Total	220,390	12.64	32	75	3

a Less than 1 per cent.

taking all of the principal industries together, appeared to have been earning more than $15 a week; but it has been found that only in copper mining, plate glass, tableware, window glass, iron and steel manufactures and oil refining, did one-third of all the male employees earn over $15 a week. On the other hand, in

cotton goods and woolen and worsteds, over half of the male employees were found to be earning less than $10 a week, while approximately a third of those in boots and shoes, furniture, glass bottle, tableware and plate glass, and leather manufactures, were working for less than $10 a week. Perhaps a better way of pointing out the low-paid industries is to enumerate those which show the lowest percentages of workers earning over $15 a week. Thus it appears to be indicated that one-fourth or less than one-fourth of the male employees in iron ore mining, clothing, cotton goods, furniture, glass bottle, leather, silk dyeing and silk goods, and woolen and worsteds manufactures, have been earning over $15 a week during the last few years. The smallest proportion of male workers in this class was found in silk dyeing and silk goods manufactures, woolen and worsteds, furniture and leather manufactures. In some industries, notably plate glass manufacturing, for instance, there were found large numbers of workers with low and high ranges of wages, with a relatively high average for all. This was due to the fact that in these industries there were considerable proportions of highly skilled workers as well as large proportions of very unskilled workers.

The recent Ohio report on wages, to which reference has already been made, affords statistics in detail as to rates of weekly wages in the various industries and groups of industries within that state. The following tabulation presents a compilation from the Ohio statistics showing the percentages of adult male wage-earners

earning specified wage rates in various large industry groups:

RATE OF WAGES OF ADULT MALE WAGE-EARNERS IN OHIO, IN 1914, BY GROUPS OF INDUSTRIES [6]

Industry Groups	Number of establishments reporting	Total number of wage-earners	Per cent. working at each classified rate of weekly wage		
			Under $18	Under $15	Under $10
Construction *a* ..	2,291	60,529	6	52	65
Manufacturers ..	6,919	436,802	12	57	76
Service *b*	1,115	14,112	29	59	80
Trade	3,436	23,687	12	64	84
Transportation and public utilities ..	807	35,047	5	53	79

a Including principally workers in building trades.

b Including employees in amusement parks, barber shops, garages, hospitals, hotels, laundries and dry-cleaning establishments, office buildings, restaurants, saloons, and theaters.

Weekly Wages of Female Workers

There is ample ground for the conclusion that from two-thirds to three-fourths of women workers in factories, stores, laundries, and in industrial wage-earning occupations generally, work at wages under $8 a week. Since practically all findings of minimum wage commissions and boards in the United States and the estimates of investigators agree that the independent woman worker can not live decently and without detriment to her health on less than $8 a week, this fact has been given a great deal of emphasis during recent years.

In the last few years a large mass of data has been obtained on women's wages. Unfortunately the methods of presentation are not always uniform and it is difficult

[6] Compiled from Bulletin of the Industrial Commission of Ohio: Rates of Wages, Hours of Labor, and Fluctuation of Employment in Ohio in 1914, pp. 47-68.

to draw exact conclusions. The data from the more comprehensive recent investigations may be summarized briefly, however, in order to depict wage conditions for women workers generally, before presenting in a detailed way the results of investigations of the different industries in which women are employed.

For approximately 100,000 women workers 16 years of age and over, the Federal Woman and Child Wage-Earners investigation found that 18.6 per cent. received under $4 a week, about 49 per cent. received less than $6, and nearly 77 per cent. received under $8. The results of the Federal census of manufactures in 1905 were strikingly similar for a much larger number of women workers. Of 588,000 women workers 15 years of age and over, the Census found that 18.4 per cent. were receiving under $4 a week, 49.8 per cent. under $6, and 77.9 per cent. under $8.

The Federal Immigration Commission's investigation of 57,712 women workers 18 years of age and over presented its data in slightly different terms. It found that about 5 per cent. were earning less than $5 a week, 45 per cent. under $7.50 and 82 per cent. under $10. The large majority of the women included in this investigation, however, were employed in the cotton goods and woolen and worsted manufacturing industries.

Two state reports for 1913 and one for 1914 afford statistics for women workers in all industries in the respective states. The New Jersey report for 87,527 workers 16 years of age and over showed that 4 per cent. were working for less than $4 a week, 28 per cent.

for less than $6, 62 per cent. for less than $8, and 84 per cent. for less than $10 a week. The Massachusetts report for 189,743 women workers 18 years of age and over showed that about 1 per cent. were working for less than $4 a week, 10 per cent. for less than $6, 40 per cent. for less than $8, and 70 per cent. for less than $10 a week. The Ohio report for 96,181 female wage-earners 18 years of age and over showed that 8 per cent. were working for less than $5 a week, and 21.4 per cent. for less than $6, 58.4 for less than $8, and 82.4 per cent. for less than $10 a week. The Ohio statistics are presented in the following tabulation:

CLASSIFIED RATES OF WAGES OF FEMALE WAGE-EARNERS 18 YEARS OF AGE OR OVER[7]

Rate of Wages per Week	Number of adult female wage-earners at each classified rate	Per cent. distribution
Less than $4	2,629	2.7
$ 4 but under $ 5	5,085	5.3
5 but under 6	12,878	13.4
6 but under 7	18,405	19.1
7 but under 8	17,178	17.9
8 but under 9	12,787	13.3
9 but under 10	10,314	10.7
10 but under 12	10,094	10.5
12 but under 15	4,822	5.0
15 but under 18	1,330	1.4
18 or over	659	.7
Total	96,181	100.0

The California Industrial Welfare Commission's first biennial report (for 1913 and 1914) contains wage data for 22,972 women workers 18 years of age and over

[7] Bulletin of the Industrial Commission of Ohio: Rates of Wages, Hours of Labor, and Fluctuation in Employment in Ohio in 1914, p. 9. Fred C. Croxton, chief statistician, and Edith M. Miller, assistant statistician.

in the principal occupations and industries in that state, which showed that 21.3 per cent. received under $8 per week and 49.1 per cent. under $10, while 28.5 per cent. received $12 and over. The report of the Michigan State Commission of Inquiry (published in January, 1915) showed that according to reports from employers for 50,351 women workers, 21.7 per cent. received less than $6, 51.4 per cent. received less than $8, and 73.9 per cent. received less than $10 per week.

The Massachusetts Minimum Wage Commission's investigations of cotton, confectionery, laundry and store workers included about 12,000 women 18 years of age and over, and showed that about 10 per cent. received less than $4 a week, 39 per cent. less than $6, and about 69 per cent. less than $8 a week.

The Minnesota Minimum Wage Commission's investigation of 13,362 women workers in St. Paul and Minneapolis factories, stores, laundries, etc., showed that 3 per cent. were earning less than $5 a week, 12 per cent. less than $6, 42 per cent. less than $8, and 67 per cent. less than $10—giving evidence of a somewhat higher wage level than in Eastern cities. The Oregon Social Welfare Committee's investigation of women workers in Portland showed that about 60 per cent. were earning less than $10 a week. On the other hand, the Kentucky Commission found that 27 per cent. of women workers were working for wages of less than $4 a week and 67 per cent. for less than $6 a week.

The recent investigations of women workers in retail

stores, shirt, confectionery, and paper box factories in the state of New York, conducted by the New York State Factory Investigating Commission, showed that approximately 17 per cent. were earning less than $5 a week, and about 75 per cent. less than $10 a week. This investigation secured data from about 42,000 women workers.

While as a general rule the wage investigations state actual earnings in a representative week, and the minimum wage commissions give rates of wages, the data are roughly comparable when the general fact is taken into consideration that women workers have been found, so far as available information shows,[8] to lose about 10 per cent. of their full time weekly wages. This does not include weeks lost during the year, however, and the evidence appears to indicate that, on the whole, regularly employed women workers lose from 25 to 30 per cent. of their working time during the year, as will be shown in another part of this report.

Differences in Women's Wages According to Industry.—Women's wage statistics show far greater differences according to localities than do men's wage statistics, largely because of the fact that the supply of women workers is less mobile and varies in size according to locality. Where the wage-earning population is large and the wage level for male workers is low, the supply is usually considerably greater than the demand because of the necessity for the entrance of women into

[8] C. E. Persons: Women's Work and Wages, *Quarterly Journal of Economics*, February, 1915, p. 212.

industry in order to supplement the wages of heads of families. The wage-level of women workers will also be found to be low in these localities. Hence women's wages in the same industry often exhibit wide variations in reports of investigations made in different localities and sections of the country.

The Federal Bureau of Labor's Report on Woman and Child Wage-Earners, conducted in 1907, 1908, and 1909, affords the most comprehensive wage statistics for women wage-workers for the country as a whole. This investigation centered on four industries—cotton, men's clothing, glass and silk manufacturing—in which large numbers of women were employed. The statistics are for actual weekly earnings and include women 16 years of age and over. For the four industries named the statistics have been summarized as follows:

PER CENT. OF WOMEN 16 YEARS OF AGE AND OVER EARNING UNDER $6 AND UNDER $8 IN A REPRESENTATIVE WEEK

Industry	Total Number	Per cent. earning	
		Under $6	Under $8
Cotton:			
New England	13,744	38.0	67.4
Southern	12,654	68.0	92.5
Men's ready-made clothing	10,149	49.0	73.1
Glass	2,774	63.9	91.2
Silk	8,596	45.4	71.1

In a group of 1,655 women reporting earnings in department and other retail stores in seven of the principal cities, the average weekly earnings of 30.8 per cent. were found to be under $6, and of 66.2 per cent. under $8. A study of the pay-rolls of department and other retail stores in New York, Chicago, and Phila-

delphia, including nearly 36,000 female employees, showed that the weekly rates of pay of 26.4 per cent. fell below $6, and of 57.5 per cent. below $8. In a group of 4,160 women employed in mills and factories in seven of the principal cities the average weekly earnings of 40.1 per cent. fell below $6, and of 74.3 per cent. below $8.[9]

In another section of the investigation, where the earnings of over 38,000 women 18 years of age and over in 23 industries were secured, the story of low wages which the pay-roll figures tell is equally striking. The per cent. of women earning under $6 and under $8 in a representative week in each of these 23 industries is shown in the table on p. 50.

The California Industrial Welfare Commission's first biennial report (for 1913 and 1914) presented wage statistics for nearly 23,000 women wage-earners 18 years and over in a number of specified industries in San Francisco, Los Angeles, Oakland, Sacramento, and San Diego, which are briefly summarized in the table at top of p. 51.

Somewhat similar statistics are afforded by the Michigan Commission of Inquiry for women wage-workers in a number of industries. Reports as to wages were received from 8,358 women in 18 different occupations, and are summarized in the tabulation at bottom of p. 51.

Generally speaking, more than the average percentage of women workers earning less than $4 a week has

[9] Vol. V, Wage-Earning Women in Stores and Factories, pp. 41, 45, and 46.

PER CENT. OF WOMEN 18 YEARS OF AGE AND OVER EARNING UNDER $6 AND UNDER $8 IN A REPRESENTATIVE WEEK, BY INDUSTRIES [10]

Industry	Number	Per cent. earning	
		Under $6	Under $8
Canning and preserving, fruits and vegetables	449	59.2	93.5
Canning and preserving, oysters	155	99.4	100.0
Cans and boxes, tin	225	50.2	79.5
Cigar boxes	335	61.8	84.5
Cigarets	1,071	33.1	75.4
Cigars	5,994	39.3	71.3
Clocks and watches	696	33.5	72.3
Confectionery	1,948	55.6	81.3
Core making	307	22.1	61.9
Corsets	2,789	29.7	58.9
Crackers and biscuits	1,273	54.0	82.0
Hardware, etc.	803	57.9	88.2
Hosiery and knit goods	7,251	31.7	64.0
Jewelry	129	31.8	67.4
Needles and pins	427	27.2	61.6
Nuts, bolts, and screws	433	61.7	92.1
Paper boxes	2,213	40.1	74.5
Pottery	503	45.5	65.8
Rubber and elastic goods	233	28.8	56.7
Shirts, overalls, etc.	2,371	55.5	89.9
Stamped and enameled ware	992	45.0	72.7
Tobacco and snuff	3,670	55.6	79.7
Woolen and worsted goods	3,915	29.7	68.9
Total	38,182	41.1	72.7

been found in box manufacturing, flower making, canning, cigar and tobacco, glass and leather manufacturing, and in book making. With the exception of a very few localities, there are few well-paid women workers in any industry, if $10 a week be taken as high wages for women, altho the recent minimum wage determinations have largely eliminated wage rates under

[10] Vol. XVIII, Employment of Women and Children in Selected Industries, p. 23.

PER CENT. OF WOMEN 18 YEARS OF AGE AND OVER IN CERTAIN INDUSTRIES IN FIVE PRINCIPAL INDUSTRIAL CENTERS IN CALIFORNIA RECEIVING SPECIFIED WEEKLY WAGE RATES

Industry	Number wage-earners reported	Per cent. receiving weekly wages under	
		$8	$9
Mercantile	9,011	18.0	31.5
Retail candy	759	9.6	35.7
Millinery	810	27.3	37.9
5, 10, and 15 cent stores	215	87.0	90.7
Laundries	3,765	26.6	48.4
Dyeing and cleaning	522	10.5	21.8
Telephone companies	3,962	12.8	19.2
Telegraph companies	372	8.3	14.8
Manufacturing industries:			
Candy and biscuits	926	42.4	50.7
Foods and drugs	1,012	19.4	33.9
Printing and bookbinding	631	14.7	28.1
Paper boxes	342	59.4	69.6
Cigars and cigarets	386	42.1	53.8
Knit goods	259	44.8	54.8
Total manufacturing industries	3,556	41.2	52.9
Total, all industries	22,972	21.2	35.0

NUMBER AND PER CENT. OF WAGE-EARNING WOMEN IN MICHIGAN REPORTING EARNINGS UNDER $8 AND UNDER $9 PER WEEK, BY OCCUPATIONS

Occupation	Under $8 per week		Under $9 per week		Total number reporting
	Number	Per cent.	Number	Per cent.	
Candy	226	77	268	90	296
Cigars	334	42	423	53	807
Cores	34	34	50	50	99
Corsets	472	57	640	77	835
Hosiery and knit goods	301	67	371	82	462
Laundries	505	70	609	84	746
Offices	141	36	197	50	396
Overalls	205	31	309	46	685
Paper and cigar boxes	269	77	313	89	360
Seeds	191	90	201	95	212
Stores	1,221	58	1,476	70	2,148
Telephone exchanges	336	71	388	82	474
Tobacco	88	54	115	71	162
Women's garments	291	48	366	61	621
Other occupations *a*	35	64	41	75	55
Total	4,649	56	5,767	69	8,358

a Shoes, woolen goods, fiber works, and metal specialties.

$8 and $9 in several industries in those states where a minimum wage for women has been provided by law.

In the tables on pp. 53-57 is presented a compilation of statistics from recent official sources showing the proportion of female workers earning under specified amounts weekly. Some of these data represent actual earnings; others, full time weekly rates of pay.[11]

[11] The foregoing statistics were compiled from the following reports and publications. The age limits used in the statistics are indicated below:

Census—Report on manufactures, 1905. (16 years and over.)

Connecticut—Bureau of labor: Report on the conditions of wage-earning women and girls, 1914.

Consumers' League of Eastern Pennsylvania. Pamphlet No. 3. Bookbinding. 1914.

Illinois—Bureau of labor statistics: Investigation of women in department stores, 1908. (Women.)

Kentucky—Commission to investigate the conditions of working women in Kentucky: Report, December, 1911. (Women.)

Massachusetts—Bureau of statistics: Annual report on the statistics of manufactures for the year 1913. (18 years and over.)

Massachusetts—Minimum wage commission: Annual reports, 1913, 1914. (16 years and over.)

Minnesota—Department of labor: Report 1913-14.

Minnesota—Minimum wage commission: First biennial report, August 1, 1913 to December 31, 1914.

Missouri—State wage commission, 1915. (Women and children.)

Ohio—Industrial commission: Wages and hours of labor of women and girls employed in mercantile establishments in Ohio in 1913. (18 years and over.)

Oregon—Report of the Social Survey Committee of the Consumers' League of Oregon on the wages, hours and conditions of work and cost and standard of living of women wage-earners in Oregon with special reference to Portland. 1913. (Women.)

Strike of textile workers in Lawrence, Mass., in 1912. 62d Cong., 2d Sess., Senate Doc. No. 870. (18 years and over.)

U. S. Bureau of labor statistics: Wages, etc., in the dress and waist industry in New York City, 1913. (Women.)

U. S. Immigration Commission: Reports. (18 years and over.)

Van Kleeck. Artificial flower-making, 1913; women in the bookbinding trade, 1913.

Woman and Child wage-earners in the United States, 1910. 61st Cong., 2d Sess., Senate Doc. No. 645. (18 years and over.)

Woolston, H. B. Wages in New York. (Results of New York factory investigating commission.) *Survey*, February 6, 1915.

WEEKLY WAGES OF FEMALE EMPLOYEES

Industry	Number	Per cent. earning under specified amounts			
		$4	$6	$8	$10
Artificial flower-making:					
Artificial flower-makers—Van Kleeck	171	....	35.1	67.8	83.6
Census report, 1905	1,845	25.3	55.3	73.8	87.2
Boots and shoes:					
New Jersey report	1,577	5.2	26.6	54.8	76.9
Massachusetts report	29,201	0.7	5.0	20.0	43.4
Washington Indust. Welfare Comm.	34	0.0	0.0	11.8	73.5
Census report, 1905	30,195	11.4	32.3	56.9	77.3
Immigration Commission:					
14 years and under 18	1,392	....	....	....	97.8
18 years and over	4,406	....	....	....	78.3
Boxes:					
New Jersey report	1,444	7.8	40.0	70.2	93.0
Massachusetts report—Fancy	2,404	2.0	18.4	47.7	75.2
Wooden packing	322	1.6	21.7	44.4	73.3
Kansas report:					
Boxes and barrels	29	....	27.5	72.4	96.6
New York Factory Investigating Commission, 1914	5,444	8.8	38.1	64.2	85.4
Census report, 1905:					
Cigar	1,404	24.7	58.2	83.1	95.4
Fancy and paper	10,936	26.3	61.0	85.3	95.4
Wooden packing	819	25.4	55.5	82.3	93.0
Washington Indust. Welfare Comm.	91	....	16.5	48.4	71.4
Woman and child wage-earners:					
Cigars	335	21.5	61.8	84.5	96.1
Paper	2,213	10.0	40.1	74.5	92.4
Brushes:					
New Jersey report	150	10.0	46.7	79.3	94.0
Massachusetts report	700	....	25.4	66.6	87.7
Kansas report	24	....	4.2	83.3	100.0
Mass. Min. Wage Commission	446	12.8	60.8	88.8	....
Canneries:					
Massachusetts report	490	1.0	31.8	95.1	98.4
Kansas report:					
Canning, preserving, cider and vinegar works	98	....	17.3	38.8	46.9
Washington Indust. Welfare Comm.:					
Fruit	288	....	10.1	26.4	86.5
Fish	1,166	....	0.7	6.0	19.1
Woman and child wage-earners:					
Fruits and vegetables	449	5.8	59.2	93.5	98.9
Oysters	155	56.1	99.4	100.0	100.0
Census report, 1905:					
Fish	2,237	10.0	23.9	47.2	72.6
Fruits and vegetables	21,651	28.6	62.3	84.5	92.4
Oysters	72	40.3	93.0	100.0	100.0

WEEKLY WAGES OF FEMALE EMPLOYEES—*Continued*

Industry	Number	Per cent. earning under specified amounts			
		$4	$6	$8	$10
Cigars and tobacco:					
New Jersey report	9,477	40.6	72.4	93.4	98.2
Massachusetts report:					
Tobacco manufacturers	1,264	14.1	48.7	77.1	84.0
Kansas report:					
Cigar factories	70	38.6	50.0	71.4	88.6
Women and child wage-earners:					
Cigars	5,994	12.7	39.3	71.3	87.6
Cigarettes	1,071	9.6	33.1	75.4	92.9
Tobacco and snuff	3,670	31.1	55.6	79.7	90.4
Census report, 1905:					
Cigars and cigarets	34,374	56.0	81.1	91.7	96.3
Tobacco, chewing, smoking and snuff	5,901	67.6	87.3	94.1	98.0
Clothing:					
New Jersey report	839	4.2	23.6	55.9	91.7
Massachusetts report:					
Men's clothing	3,642	1.9	13.5	42.8	74.0
Women's clothing	5,079	1.1	13.6	39.6	66.8
Kansas report—Garment factories	379	15.3	66.8	93.1	98.7
Minn. Min. Wage Comm., 1914	2,367	1.1	15.0	27.6	41.2
Missouri Senate Wage Comm., 1915	1,569	19.6	39.6	61.2	83.0
Washington Indust. Welfare Comm.	180	....	2.7	17.2	50.0
Women and child wage-earners:					
1910—18 years and over	2,371	14.2	56.5	80.9	93.3
1911—16 years and over	10,149	20.1	49.0	73.1	83.0
Wages, etc., in dress and waist industry in New York City, 1913:					
Week-workers	6,840	0.2	5.3	21.1	39.3
Piece-workers	7,153	3.4	6.7	12.3	21.8
Census report, 1905:					
Men's clothing	27,485	18.6	49.5	78.8	92.8
Women's clothing	26,735	14.5	39.6	67.8	85.7
Immigration Comm.—14-18 years	1,819	....	....	....	96.4
18 years and over	6,186	....	....	....	76.5
Confectionery:					
New Jersey report	608	6.9	66.9	93.3	97.5
Massachusetts report	4,709	0.3	31.5	71.2	93.4
Kansas report	238	7.1	47.0	76.9	90.3
Mass. Min. Wage Comm., 1914	3,326	23.1	69.6	92.1	97.5
New York Factory Investigating Commission, 1914	4,733	12.3	54.6	80.5	90.6
Washington Indust. Welfare Comm.	400	....	15.8	55.3	77.3
Woman and child wage-earners	1,948	16.2	55.6	81.3	92.0
Census report, 1905	11,831	36.0	74.8	92.9	97.7
Corsets:					
New Jersey report	2,634	3.7	20.9	49.1	74.3
Massachusetts report	2,360	1.4	21.9	49.9	80.5
Mass. Min. Wage Comm., 1914.	2,110	9.6	35.5	68.7	....
Woman and child wage-earners	2,787	10.0	29.7	58.9	85.3
Census report, 1905	4,718	18.6	41.8	70.9	90.1

WEEKLY WAGES OF FEMALE EMPLOYEES—*Continued*

Industry	Number	Per cent. earning under specified amounts			
		$4	$6	$8	$10
Cotton goods:					
New Jersey report:					
Cotton goods	4,444	5.8	35.2	72.1	93.0
Finishing and dyeing	817	1.2	52.6	92.9	94.9
Massachusetts report:					
Cotton goods	48,264	0.5	8.4	37.7	75.6
Cotton small wares	453	1.8	16.1	55.6	82.6
Woman and child wage-earners	6,492	13.4	32.0	54.3	71.8
Report on Lawrence Strike, 1912	2,282	4.5	16.2	50.6	91.8
Census report, 1905	494,118	16.7	48.0	80.0	95.9
Immigration Commission:					
14 years and under 18	4,324	....	....	....	97.2
18 years and over	25,324	....	....	....	87.1
Furniture:					
Massachusetts report	774	2.2	15.5	43.5	82.2
Census report, 1905	1,911	27.9	59.6	84.2	93.9
Glass:					
New Jersey report:					
Cut tableware	73	1.4	38.4	72.6	94.5
Mirrors	22	....	54.5	95.5	100.0
Window glass and bottles	184	1.6	65.2	95.1	97.8
Massachusetts report:					
Glass cutting, staining and ornamenting	9	....	....	55.6	88.9
Kansas report:					
Glass factories	55	....	21.8	98.2	....
Woman and child wage-earners	3,255	21.5	64.3	88.6	96.1
Census report, 1905	1,721	31.6	71.3	89.7	96.1
Immigration Comm.—14-18 years	270	....	....	....	100.0
18 years and over	382	....	....	....	96.6
Hosiery and knit goods:					
New Jersey report	2,143	5.1	22.3	53.0	79.4
Massachusetts report	7,192	2.7	23.7	53.4	84.3
Woman and child wage-earners	7,251	7.7	31.7	64.0	84.6
Census report, 1905	29,502	17.5	48.7	80.1	94.9
Leather:					
New Jersey report:					
Leather	122	7.4	40.2	77.0	91.0
Leather goods	327	27.5	62.1	85.9	92.7
Massachusetts report:					
Tanned, curried and finished	171	0.6	14.0	48.0	94.2
Leather goods	362	....	21.3	58.8	82.6
Census report, 1905:					
Tanned, curried and finished	1,306	9.0	53.1	98.2	99.4
Leather goods	887	21.5	56.8	84.1	92.9
Immigration Commission:					
14 years and under 18	182	....	....	....	100.0
16 years and over	712	....	....	....	96.1

WEEKLY WAGES OF FEMALE EMPLOYEES—*Continued*

Industry	Number	Per cent. earning under specified amounts			
		$4	$6	$8	$10
Laundries:					
Kentucky Commission to Investigate Conditions of Working women, 1911	492	24.0	....	....	....
Mass. Min. Wage Comm., 1914	2,961	8.2	51.5	68.8	82.2
Oregon Social Survey Committee	140	....	....	47.7	92.6
Washington Indust. Welfare Comm.	2,304	....	5.2	39.2	72.4
Mercantile establishments:					
Connecticut, Bureau of Labor	544	0.6	76.6	93.4	97.2
Illinois, Bureau of Labor Statistics, Investigation of Women in Department Stores, 1908	2,556	....	10.3	31.5	49.5
Kentucky Commission to Investigate Conditions of Working Women, 1911	1,601	30.0	....	....	....
Mass. Min. Wage Comm., 1914	854	7.4	21.8	53.7	75.5
Minn. Min. Wage Comm., 1914	5,299	0.9	14.9	46.9	69.7
Ohio Industrial Comm., 1913	14,635	3.5	21.4	51.9	71.8
Oregon Social Survey Committee	2,078	0.1	9.2	31.1	58.2
Washington Indust. Welfare Comm.:					
Mercantile establishments	4,544	0.6	2.2	10.7	13.6
Five and ten cent stores	104	....	45.2	90.4	100.0
New York Factory Investigating Commission, 1914:					
Large department stores	.....	....	....	53.0	....
Small neighborhood shops	.....	....	....	68.0	....
Five and ten cent stores	.....	....	....	99.0	....
Paper and wood pulp:					
New Jersey report	408	0.5	36.8	86.0	95.8
Massachusetts report	4,438	0.8	6.2	60.1	94.2
Kansas report	26	3.8	42.3	84.6	88.5
Massachusetts, Bureau of Statistics, wages and hours in the paper and wood pulp industry, 1914	4,463	5.3	22.5	69.6	95.4
Census report, 1905	6,377	7.9	43.2	92.5	99.1
Pottery:					
Women and child wage-earners	503	16.5	45.5	65.8	83.1
Census report, 1905	1,928	21.3	65.5	86.7	93.3
Printing and bookbinding:					
New Jersey report	565	8.8	29.4	60.9	67.1
Massachusetts report	2,019	0.6	6.0	33.0	55.4
Kansas report	933	5.6	18.1	67.2	76.6
Consumers' League of Eastern Pennsylvania, Pamphlet No. 3, 1914	149	15.4	37.6	68.5	92.6
Oregon Social Survey Committee	57	....	....	26.3	56.1
Washington Indust. Welfare Comm.	68	....	0.0	7.4	16.2
Women in the bookbinding trade, Von Kleeck, 1913	193	41.9	88.6	....	....
Census report, 1905	4,717	15.8	48.7	80.0	93.4

WEEKLY WAGES OF FEMALE EMPLOYEES—*Continued*

Industry	Number	Per cent. earning under specified amounts			
		$4	$6	$8	$10
Silk:					
New Jersey report:					
Silk—broad and ribbon	11,760	2.8	15.9	43.2	69.7
Silk dyeing	968	4.8	15.3	82.9	96.1
Silk throwing	940	2.8	13.8	84.1	95.5
Massachusetts report	2,728	1.7	9.3	24.2	53.3
Census report, 1905	17,763	19.1	52.1	78.2	92.0
Immigration Commission:					
14 years and under 18	3,465	....	....	....	96.9
18 years and over	4,837	....	....	....	76.4
Telephones:					
Consumers' League of Eastern Pennsylvania, 1913:					
Exchange No. 1	130	....	9.2	58.4	100.0
Exchange No. 2	70	0.0	7.1	75.7	100.0
Kentucky Commission to Investigate Conditions of Working Women in Kentucky, 1911	597	36.9	....	....	....
Oregon Social Survey Committee	52	....	....	26.8	50.0
Washington Indust. Welfare Comm.:					
1913	1,040	....	....	30.1	74.8
1914	1,091	....	....	16.8	66.5
Woolen and worsted:					
New Jersey	7,712	0.9	27.3	71.3	89.5
Massachusetts report	20,119	0.1	3.8	40.9	70.5
Strike of textile workers in Lawrence, 1912	6,038	5.3	16.2	64.9	84.3
Women and child wage-earners	3,915	6.0	29.7	68.9	87.7
Census report, 1905:					
Woolen goods	14,515	9.4	37.9	68.1	87.3
Worsted goods	20,138	5.8	42.2	74.8	89.0
Immigration Commission:					
14 years and under 18	3,092	....	....	....	97.0
18 years and over	13,789	....	....	....	75.9

The Difference in Wages of Men and Women Workers

The foregoing wage statistics clearly show a wide difference between the wage rates at which male wage-earners work and the wage rates at which female wage-earners work. This difference is seen not only for industries as a whole, but within almost every industry in which men and women are employed.

The outstanding fact in connection with this matter appears to be that, in nearly all low-paid industries, where occupations are such as to permit the doing of work by women, the proportion of women is great. The textile and glass industries are obvious examples of this condition. How far this is due solely to the willingness of women to work for less wages than men can not, of course, be stated. More importance, it is believed, should be assigned to a condition which appears to be more clear-cut and prevalent. It is this: in low-paid industries male workers are frequently unable to earn sufficient income to support their families, and their wages must be supplemented by wages earned by their wives and daughters. Wherever, as a general rule, these industries offer to women opportunities for employment, the presence of women wage-earners is typical. Even where these industries do not offer opportunities for employment to women, the necessity for additional income in the families of wage-earners forces their wives and daughters into other industries in the same localities where the opportunity for female employment exists.

Aside from the potency of what appears to be the fundamental cause of the employment of women in industrial occupations, the significant fact has been brought out in detailed studies of different occupations in the same industries that, in practically every industry studied, men's wages ranged higher than women's, and the proportion earning fair or good wages was very much larger among the men than among the

women. The extensive federal investigation of woman and child wage-earners brought out this condition very clearly, as subsequent studies in specific industries and localities have done. The Woman and Child Wage-Earners' report showed that the higher wages of men were due, in very large degree, to a difference in the work done by men and women; to a less degree, it seemed due to a difference in strength, swiftness, or skill when they were doing the same work; and in a very few instances, so few as to be negligible, it seemed due to no other cause than that the women were willing to do the work for less and therefore were employed.

The first cause, in difference in the kind of work done, was especially noticeable in the group of miscellaneous factory industries studied. In industry after industry a clear-cut division of work between the sexes was found. Ordinarily the occupations involving skill, training, and responsibility were in the hands of the men, while the work of the women was apt to be at best only semi-skilled, and in many cases was purely mechanical. Under these circumstances the difference in the earnings of the sexes was very marked. Thus, of 31,288 male workers 18 years of age and over engaged in these industries, well over one-half (56.5 per cent.) earned $10 or more a week, while of the 38,182 female workers in the same age group employed in these industries, only one-tenth (10.5 per cent.) earned as much or more than $10. Two-fifths of the women (41.1 per cent.), as against 9.5 per cent. of the men, earned under $6 a week.

Even when men and women were nominally engaged in the same occupation there was frequently a difference in the kind and quality of work undertaken by them. Thus, in gilding pottery, the simplest form, lining, is done almost wholly by women, while the more difficult form, filling in designs, is done by both sexes. The report says:

"But there is no competition between them, as the men do the artistic work which requires long preliminary training, while the women do those parts which may be learned in a few months. The men receive higher wages and are said to be displacing the women, partly because they do better work and partly because they can move their ware about without assistance.[12]

When men and women were engaged in exactly the same work under the same circumstances it was apt to be at piece rates. Under these circumstances the difference in earnings was usually less and sometimes was in favor of the female workers. Thus, in the New England cotton mills the average earnings per hour of male weavers 16 years of age and over were 17 cents, while for female weavers in the same age group they were 15.4 cents. Male ring spinners 16 years of age and over averaged 11.6 cents per hour, while female ring spinners averaged 12.6 cents per hour. When in such occupations men made higher earnings it seemed to be due sometimes to their greater strength which enabled them to handle their machines to better advantage,

[12] Woman and Child Wage-earners: Vol. XVIII, Employment of Women and Children in Selected Industries, p. 268. See the excellent summary of the Woman and Child Wage-earners' report published by the U. S. Bureau of Labor Statistics (Bulletin 175), from which much of the above paragraphs has been taken. (See especially pp. 23 and 24.)

sometimes to an ability to work at greater speed, and sometimes to greater skill or longer experience.

Annual Earnings of Wage-Workers

An examination of all authoritative data on annual earnings of workers during recent years appears to indicate that the following are warrantable conclusions:

1. That fully one-fourth of the adult male workers in the principal industries and trades, who are heads of families, earned less than $400, one-half less than $600, four-fifths less than $800, and less than one-tenth earned as much as $1,000 a year.

2. That fully a third of all male workers 18 years of age and over in the principal industries and trades, whether heads of families or not, earned less than $400, two-thirds earned less than $600, and about one-twentieth earned over $1,000 a year.

3. That approximately a fourth of women workers 18 years of age and over who are regularly employed in the principal manufacturing industries earned less than $200, and two-thirds earned less than $400 a year.

The sources of information for annual earnings of workers in the principal industries and trades are unfortunately limited, and the exactness of the above statements is subject to qualification. The Federal Immigration Commission's reports and the Federal Bureau of Labor's report on cost of living are practically the only sources affording information on the proportions earning specified amounts in different industries. State reports of Massachusetts, New Jersey, Pennsylvania

and Wisconsin, afford data on average annual earnings according to industry, but the accuracy of these reports is open to serious question because of the methods used in ascertaining earnings. Some writers attempt to compute annual earnings by multiplying weekly earnings by 52 and deducting the wage equivalent of time lost. Even assuming that the amount of time lost can be ascertained with any approximation of accuracy—a very doubtful assumption indeed—the difficulties in the way of computing the proportions of workers earning specified annual earnings are so great as to render such statistics of only corroborative value at best. In another section of this volume the data for weekly earnings have been summarized in detail as well as the data for lost working time; the data for annual earnings here presented are confined to statistics giving actual annual earnings of workers whose economic status has been investigated by recognized authorities.

Statistics of annual earnings of native and foreign-born show a considerably lower economic status for the latter group, for both males and females. In the table on p. 63 are given the statistics from the two sources of data for annual earnings of male workers. The males in all instances were heads of families.

Altho these investigations were made several years ago, they afford the latest trustworthy data.

Relatively lower earnings of male heads of families are shown by the Immigration Commission's reports than by the Bureau of Labor's inquiry. This is explained by the fact that the Immigration Commission's

statistics are chiefly of immigrant workers, a large proportion of whom were unskilled workers from southern and eastern Europe, while the Bureau of Labor's data are for native and older immigrant workers from northern Europe and Great Britain. The Immigration Commission's figures for native born workers are more nearly comparable to the Bureau of Labor's data and a comparison indicates a close similarity. The preponderance of newer immigrants in the principal industries can not be overlooked and, in the conclusions stated in the foregoing paragraphs, was to be taken into consideration.

Source of Data:	Number for whom data were obtained	Per cent. earning			
		Under $400	Under $600	Under $800	Under $1,000
Bureau of Labor, 1903	25,440	12.5	47.2	81.9	92.2
Immigration Commission, 1908-1909—Total	15,038	31.4	66.5	89.2	96.0
Native-born	1,809	12.2	40.7	72.4	87.0
Foreign-born ..	13,229	34.1	70.0	91.5	97.2

The wages according to industry have already been indicated in the data summarized for weekly wages. Since the amount of lost working time is greater in some industries than in others, it is important to note differences in actual earnings according to some of the principal industries.

The highest annual earnings of all male workers, according to statistics obtained from over 26,000 individuals 18 years of age and over by the Federal Immigration Commission,[13] were found in the manufacture of cigars and tobacco, in copper mining and smelting,

[13] Immigration Commission Reports, Vol. 19, p. 226.

and in iron ore mining. Less than a fourth of the tobacco workers and copper miners and about 28 per cent. of the iron ore workers earned less than $600 a year. In all of the other industries for which data were secured, except collar and cuff manufacturing, over half of the male workers earned less than $600. The lowest annual earnings were found in woolen and worsted, cotton goods, iron and steel, and leather manufacturing, and slaughtering and meat-packing. The statistics are summarized in the following table:

YEARLY EARNINGS (APPROXIMATE) OF MALES 18 YEARS OF AGE OR OVER, BY INDUSTRY [14]

Industry	Per cent. earning			
	Under $200	Under $400	Under $600	Under $1,000
Agricultural implements and vehicles	5.1	24.3	61.0	96.9
Cigars and tobacco	1.3	5.6	16.3	80.0
Clothing	6.2	33.3	66.9	97.2
Coal mining, anthracite	2.8	38.7	93.2	99.6
Coal mining, bituminous	5.3	44.8	85.4	99.2
Collars and cuffs	2.0	13.1	43.0	94.0
Copper mining and smelting	0.3	1.9	19.7	96.7
Cotton goods	11.5	53.8	88.2	99.5
Furniture	2.7	18.3	58.0	97.1
Glass	6.1	21.7	57.9	94.7
Gloves	1.3	11.7	40.3	96.5
Iron and Steel	24.1	68.4	90.2	98.6
Iron ore mining	2.4	11.9	28.6	92.5
Leather	17.4	52.9	86.6	98.4
Oil refining	2.9	23.7	60.4	94.2
Shoes	8.0	41.8	70.0	95.0
Silk goods	9.6	49.2	78.5	99.4
Slaughtering and meat-packing	12.2	22.2	64.9	95.9
Sugar refining	3.7	19.3	63.2	98.7
Woolen and worsted goods	14.9	61.4	89.5	99.4
Diversified manufactures	4.5	34.3	70.8	95.7
Total	8.8	40.9	74.7	97.3

[14] Immigration Commission Reports, Vol. 19, p. 226.

The data according to industry for annual earnings of heads of families afforded by the Bureau of Labor's Cost of Living study in 1901 are, of course, not comparable to the Immigration Commission's figures, but they indicate some of the principal differences noted above. The following table summarizes the Bureau of Labor's statistics for the principal manufacturing industries:

ANNUAL EARNINGS OF HEADS OF 25,440 FAMILIES; PER CENT. IN SPECIFIED GROUP OF EARNINGS, BY INDUSTRY [15]

Industry	Under $300	Under $500	Under $800	Under $1,000
Chemicals	4.3	44.8	89.0	98.2
Clay, glass and stone	2.7	23.1	70.4	92.2
Food	2.8	26.6	89.8	97.1
Hand trades:				
Iron and steel	2.1	23.0	77.0	94.4
Leather	4.4	29.7	91.7	98.0
Lumber and its manufactures	4.3	40.4	89.5	97.7
Metals (other than iron and steel)	1.4	19.9	81.0	95.0
Paper and printing	1.8	14.9	64.5	84.1
Textiles	11.0	49.8	81.3	93.9
Tobacco	6.1	34.7	83.8	97.7
Vehicles	1.6	24.7	82.6	95.5
Grand total *a*	4.5	29.6	82.2	88.5

a Includes heads of 25,440 families in all industries.

Statistics of annual earnings of copper mine workers in Michigan are afforded by the Immigration Commission, as given in the summary table already quoted, as well as by the Bureau of Labor's investigation of the 1912 strike. The data obtained by the latter investigation tend to corroborate the Immigration Commission's figures, altho annual earnings must be computed from

[15] Eighteenth Annual Report of U. S. Commissioner of Labor, p. 285.

daily earnings and do not take into consideration lost time. However, since nearly all of the mines operated 308 days or over in 1912, lost time included only that lost voluntarily or on account of sickness or accidents, payment being by the shift. The following tabulation may therefore be said to show the possible annual earnings of miners and trammers based on their actual earnings during the month of May, 1913:

Maximum Limit of Annual Earnings	Per cent. earning at specified rates	
	Miners	Trammers
Under $616	*a*	*a*
$616-$693	2.7	28.7
693- 770	54.5	57.5
770- 847	27.8	7.7
847- 1,234	8.5	5.2
1,234-1,309	3.9	0.7
Over $1,309	2.5	0.2

a Less than one-tenth of 1 per cent.

Over 80 per cent. of the miners were found to be earning, at annual rates, between $700 and $800, and over 85 per cent. of the trammers were found to be earning, at annual rates, between $600 and $770. The Immigration Commission's figures of actual earnings showed that 77 per cent. of workers 18 years of age and over, engaged in copper mining and smelting, had annual earnings between $600 and $1,000. The average annual earnings was found by the same investigation to be $716, which was, with the exception of cigar and tobacco workers, the highest average annual earnings of workers in all the principal industries investigated.

Some data relating to the opportunity for annual

earnings afforded, and thus of the maximum possible earnings, were obtained for workers in the steel industry from the report of the Federal Bureau of Labor on Conditions of Employment in that industry. In plants operating 9 or more months in 1910, fully three-fourths of the 74,000 workers did not have the opportunity to earn more than $800, and over one-third could not have earned more than $600, if they had worked every day the plants were operating. The situation is indicated in the following table:

OPPORTUNITIES FOR ANNUAL EARNINGS FOR STEEL WORKERS IN THE UNITED STATES DURING 1910 [16]

Classified Annual Earnings	Per cent. of employees having opportunity to earn specified amounts in plants operating during 1910—		
	9 or more months	6 and under 9 months	3 and under 6 months
Under $400	5.1	34.7	83.8
Under 600	38.3	77.8	95.0
Under 800	74.3	88.7	98.4
Under 1,000	87.3	93.4	99.5
Total employees	73,904	12,686	4,009

Statistics of annual earnings of women workers for specific industries are so meager as to be of doubtful value. The Immigration Commission's figures included only 3,609 female workers in a large number of industries. Without attempting to suggest conclusions for different industries, the following table of annual earn-

[16] Compiled from statistics published in Conditions of Employment in the Iron and Steel Industry, Vol. III, pp. 559-560, 565, 570. The figures are for steel plants, all principal departments, in New England, Eastern, Pittsburgh, Great Lakes and Middle West, and Southern districts. By "opportunity to earn" is meant working full time every day the plant was operated in 1910.

ings of women workers, 18 years of age and over, according to industry, is presented. Those industries in which data for less than 100 workers were secured are omitted.[17]

Industry	Per cent. earning		
	Under $200	Under $300	Under $400
Clothing	34.2	61.1	81.9
Collars and cuffs	10.6	37.4	58.6
Cotton goods	17.1	39.2	75.0
Gloves	37.6	63.0	85.5
Shoes	18.5	40.2	63.4
Slaughtering and meat-packing	19.3	43.1	78.0
Woolen and worsted	21.3	51.9	80.6

Data for a larger number of women workers in four large industries were afforded by the Federal Woman and Child Wage-Earners report, altho in different form from the Immigration Commission's statistics. These data are for average annual earnings of about 7,000 women 16 years of age and over, and are of especial interest because they indicate differences in earnings by women or various ages. The data were obtained in the course of studies of wage-working families and are summarized on p. 69.[18]

It will be noted that with the exception of the comparatively few women workers over 25 years of age, the maximum annual earnings was reached between the ages of 18 and 22 years, but approximately at the age of 19 or 20.

[17] Compiled from the reports of the Immigration Commission, Vol. 19, p. 228.

[18] U. S. Bureau of Labor Statistics: Bulletin 175, Summary of the Report on Condition of Woman and Child Wage-Earners, p. 26.

AGE AND EARNINGS OF FEMALE WORKERS, AGE 16 OR OVER, IN FOUR SPECIFIED INDUSTRIES

AGE	Cotton mills, Northern		Cotton mills, Southern		Ready-made garments Men's		Glass-workers		New Jersey silk workers		Pennsylvania silk workers	
	Number	Average earnings during year	Number	Average earnings during year	Number	Average earnings during year	Number	Average earnings during year	Number	Average earnings during year	Number	Average earnings during year
16 years..	164	$272	298	$227	405	$207	283	$163	105	$257	192	$166
17 years..	151	302	217	231	338	238	233	182	101	280	142	188
18 years..	158	304	212	234	289	273	197	214	85	335	102	187
19 years..	116	350	140	248	230	287	106	206	77	320	55	201
20 years..	98	321	98	246	183	281	106	232	67	356	47	215
21 years..	64	347	82	243	136	310	75	219	45	391	38	238
22 years..	58	354	56	244	119	310	56	214	44	409	29	276
23 years..	36	345	32	260	64	313	45	244	42	404	27	255
24 years..	38	369	43	243	43	274	36	246	35	443	11	249
25 to 29 years ...	73	374	68	248	112	309	52	292	95	419	29	302
30 years or over ...	61	340	42	265	68	313	43	263	84	418	14	322

Recent Increases in Wage Rates

It should be borne in mind that the statistics of weekly wage rates and weekly earnings summarized in the foregoing pages were obtained prior to the advances in wages made in a large number of industries and trades in 1915 and 1916, especially in 1916. How far the conclusions indicated above may be qualified by these advances is, of course, impossible of statement until later statistics are available. So far as annual earnings of wage-workers are concerned, the period of extraordinary industrial activity which began in the summer of 1915 must be regarded in the same light as cyclical fluctuations in industrial activity.

The recent advances in wage rates which have been occasioned by the unusual demand for labor at a time of restricted immigration constitute, of course, a certain advantage in economic status to wage-earners in many instances. The three increases of 10 per cent. during 1916 in the wages of steel workers in the employ of the United States Steel Corporation and of a number of other large iron and steel manufacturing companies, and of 5 and 10 per cent. in textile mills in New England and in some other sections, are among the most noteworthy advances in industries employing large numbers of low-paid, unskilled or semi-skilled workers. The wage increases in the coal mining industry secured by agreements; among shopmen, trackmen, and station men on a large number of railroads; copper and other metal miners; machinists in a large number of industries and localities and munition workers generally; street railway employees; and in many other trades and occupations; have indicated that an apparently general upward wage movement has occurred in the principal industries and trades and occupations.[19] With the exception, however, of steel, mine, and textile workers, the largest increases appear to have taken place in the skilled occupations, particularly in the metal working plants. How far these increases in rates, aside from the increases in earnings made possible by steady employment during a period of great industrial activity, have kept pace with increases in prices of

[19] Answers from manufacturers to a questionnaire sent out by the Philadelphia Reserve Board Agent in April, 1916, and published in the *Annalist* of April 24,

necessaries and of the ordinary comforts used by wage-earning families, is impossible of statement until accurate statistics are obtained and published.

1916, showed the following percentages of increases in wages as compared with the same period in 1915, by industries:

Industries Reporting	Per cent. increase in wages over year ago (1915) (Approximate average)
Agricultural implements	9
Automobiles and parts	17
Carpets, rugs, oilcloth, linoleum	5
Cement, lime, etc.	13
Chemicals (fertilizers, soap, etc.)	11
Clothing	11
Coal and coal mining	5
Confectionery	8
Cotton and cotton goods	8
Department stores	7
Dry goods, etc.	13
Electrical supplies, etc.	15
Flour and grist mill products	15
Furniture	9
Glass	5
Groceries, etc.	12
Hardware	13
Hosiery and knit goods	9
Iron and steel	15
Leather, glazed kid, and shoes	9
Lumber, millwork	10
Machinery, foundry products, loco., etc.	14
Paints, etc.	19
Paper and products	13
Petroleum, etc.	12
Pottery, pressed brick, etc.	12
Rubber goods	14
Shipbuilding	15
Silks, laces, etc.	9
Slaughtering, etc.	10
Tobacco and cigars	6
Woolens, etc.	12
Miscellaneous *a*	7
Total	11

a Including roofing materials, plumbers' supplies, office machines, dental supplies, hats, watches, advertising.

III

LOSS IN WORKING TIME

Irregularity of employment as a condition of labor involves more than irregularity or uncertainty in the demand for labor. It involves also those factors which determine the worker's ability to grasp or retain the opportunity for employment which industry actually offers.

In recent years almost disproportionate attention has been given, in discussions of the problems, to factors governing the demand for labor, or, more specifically, to those causes in the operation and management of industry which result in the lack of work. Of scarcely less importance are those causes which hinder and prevent workers from enjoying to the maximum extent the chance for work which is already present. If the question is to be considered from the standpoint of the wage-earner, and therefore as a condition affecting his economic welfare, both of these phases should receive attention. On the one hand, there are conditions affecting the regularity of the demand for labor, such as seasonal and cyclical fluctuations in industry and methods of employing and utilizing the labor force in industrial establishments. On the other hand, there are conditions affecting the supply of labor—its physical efficiency, its ability to meet changes in the character of labor needed, and its mobility in responding to the geographical and

seasonal irregularities in the demand. The extent of the effects of these factors, and their causes, are fundamental considerations in understanding irregularity of employment as a condition of labor.

From this point of view, therefore, irregularity of employment may best be considered as actual loss in working time by wage-earners. Interpreted in terms of the worker's economic status, this means decreased earnings, irregularity in income, economic insecurity, and loss of efficiency, which in turn result in inability to work regularly—one of the vicious circles that render problems of labor so baffling. It means that, as the result of the inability of workers to work, or to get work, unemployment persists to such an extent that in no industry or occupation does the number of unemployed workers ever reach zero. This "irreducible minimum" of unemployment is not due, as Mr. W. H. Beveridge has pointed out, to "the chronic idleness of a few, but to the incessant loss of time now by some, now by others, of a comparatively large body of men, most of whom are more often in unemployment than out of it."[1] For the purpose of clearness, the available data relating to the extent of this condition of labor are summarized in this chapter under the following heads:

1. The wage-earner's loss in working time, including general statements and statistics, and statistics for specified industries, trades, and occupations.

2. The extent of unemployment.

In the succeeding chapter some of the more im-

[1] **Unemployment: A Problem of Industry, p. 72.**

portant data bearing on the causes of irregularity of employment are summarized.

The Wage-Earner's Loss in Working Time

Any estimate of the average amount of time lost by the average wage-worker employed even in those industries operating normally throughout the year must be extremely hazardous. Were sufficient data available to admit of a satisfactory estimate for any one year, the difficulty of selecting a normal year would be sufficient to invalidate any statement if exprest in exact terms. Just as in the case of statements of average wages or average earnings, a statement of an average loss of time would not afford a true picture of the wide difference between the "regularly" and the "irregularly" employed.

Some estimate of loss in working time by the average American wage-earner, however, is necessary to enable the student to form an intelligent idea of irregularity of employment as a condition of labor. It must of necessity be a very rough estimate, based upon data obtained in the numerous investigations and observations during recent years, and may be stated as follows: A careful review of the available data indicates that the average wage-earner, employed in the principal manufacturing and mining industries which operate throughout the normal year, loses from 10 to 20 per cent. of his possible working time during the year. This estimate takes into consideration all causes of loss in working time and may be said to be a rough average.

It is subject to important qualifications. The loss of working time is much greater in some years than in others. For example, the average loss of time per worker doubtless exceeded two of the twelve months ending on June 31, 1915, and doubtless was less than one during the succeeding twelve months of extraordinary activity. The amount of lost working time also varies for workers in different industries and in different occupations and trades. Loss of time appears to be greatest in bituminous coal mining, iron and steel manufacturing, leather, woolen and worsted, clothing, meat-packing and slaughtering, and in all industries where the proportion of unskilled labor is great. The amount of lost time varies also according to different plants within the same industry and according to locality and section of the country. Thus, in bituminous coal mining, mine workers in 1913 in Virginia lost only 26 out of 306 possible working days during the year, while in Illinois and Indiana they lost 116 and 117 days out of the 306, because of the conditions of the industry alone. The amount of lost time varies, too, with the individual worker and the class of worker. It has been found that the lowest-paid worker is subject to the greatest loss in working time, not simply because he is unskilled, but because he is poorly nourished and weakened by the effects of unfavorable conditions of living and, in many instances, by unbearably severe conditions of work. The skilled worker, it has been found, and the better-paid worker under all conditions, has at practically all times less chance of losing working time

and having diminished earnings through lost time, than the unskilled and poorly paid. The trend in the evolution of modern industry toward the employment of a larger proportion of unskilled labor, as well as the fact that many industries have come into existence because of the availability of a supply of casual laborers and of women and children workers who are willing to work for less than subsistence wages, suggests that there has been a tendency toward a greater irregularity of employment, unemployment, and loss of working time, than ever before. It is also important to point out that there is always some loss in working time from some known cause; unemployment has never reached zero in any trade or industry or occupation in which a considerable number of workers are employed. Even if the demand for labor should be so great that every regular worker would be needed, there is the "irreducible minimum" of unemployment because some workers are sick or disabled or prevented from working their maximum time for other reasons. The situation may be depicted more accurately and clearly if some of the results of recent investigations and records are stated briefly.

General Statistics and Statements.—Probably the most extensive and representative data on the loss in working time by wage-workers in the basic industries are afforded by the reports of the Federal Immigration Commission. Of the 27,909 male workers 18 years of age and over who were included in the statistics of regularity of employment, only 37.1 per cent. were found to have

worked 12 full-time months. Thus, nearly two-thirds of them lost time during the year. The situation may be exprest as follows:

PER CENT. OF 27,909 MALE WORKERS IN PRINCIPAL INDUSTRIES LOSING WORKING TIME DURING A YEAR[2]

Full Time Months of Working Time Lost by Workers	Per cent. of 27,909 male workers
9 or more	2.0
6 " "	9.5
5 " "	18.0
4 " "	20.0
3 " "	32.4
2 " "	46.8
1 " "	56.7
Some time lost	62.9
No full time lost	37.1

A comparison of the Immigration Commission's statistics of weekly earnings with annual earnings is suggestive. The following tabulations for male and female wage-earners 18 years of age and over present these comparisons:

PROPORTION OF 52 TIMES WEEKLY RATE ANNUAL EARNINGS OF MALE AND FEMALE EMPLOYEES 18 YEARS OF AGE AND OVER[2a]

Sex	Number reported	Average rate of weekly earnings	For 52 weeks	Number reported	Actual annual earnings	Percentage actual earnings of 52 times weekly rate.
Males	220,390	$12.64	$657	26,616	$475	72
Females	57,712	7.96	414	3,609	304	73

[2] Practically all of the data was obtained during the year 1909, and thus covers a year ending at various dates, according to individuals furnishing data, in 1909. The above tabulation is compiled from Reports of the U. S. Immigration Commission, Vol. 20, p. 453.

[2a] *Ibid.*, Vol. 19, pp. 111-123.

While the number of women workers reporting annual earnings may be too small to be thoroughly representative, it appears that the average male worker lost at least a fourth of his annual earnings. Translated into working time, he lost the equivalent of 13 weeks' earnings, or about three months.

A more intimate glimpse of what lost time means to the workingman and his family was afforded by the Federal Bureau of Labor's study of 24,402 working-class families in 1901. This investigation showed that in nearly half of these families, the principal bread-winner lost working time during the year. The average time lost by the 12,154 heads of families reporting lost time was 9.43 weeks during the year, or more than two months, or an average of 4.70 weeks for the total 24,402,[3] about 9 per cent. of their full time.

Replies to inquiries made by the New York Commission on Employers' Liability and Unemployment in 1910, from 179 labor union secretaries in the State of New York, indicated that in only 8 per cent. of the unions the workers lost no time in consequence of unemployment, while in 25 per cent. the workers lost three months or more on the average during the year. Taking all trades represented in these unions it was shown

[3] Eighteenth Annual Report of the United States Commissioner of Labor, p. 44.

Similar data, altho for a very much smaller number of families, were afforded by an intensive study by the Massachusetts Bureau of Statistics of Labor of 152 workingmen's families who were considered to be above the average in economic status. These showed that the heads of these families lost an average of 35 working days, or 11 per cent. of the total possible working time. (Thirty-second Annual Report of the Massachusetts Bureau of Statistics of Labor, pp. 239-314.)

that organized workers lost on an average 20 per cent. of their possible income through unemployment.[4]

The situation among women workers employed in several important industries is well illustrated by the results of the New York Factory Investigating Commission's recent inquiry. As summed up by Mrs. Irene Osgood Andrews, "at least 15 per cent. should be added to any wage rate (for women) in order to cover losses from short time work."[5] Of 1,500 comparatively steadily employed women who were interviewed in the course of this commission's investigation,[6] 1,000 had lost on an average one month during the preceding year. In the manufacture of shirts, candy and paper boxes, and in mercantile establishments, in which were

[4] Third Report, 1911, pp. 2, 8. The significance of this average may be more clearly seen if it is stated for groups of unions, as in the following table:

Per cent. of possible earnings lost by unemployment	Number of unions in which average member lost earnings by unemployment
Less than 10	18
10 to 20	36
20.1 to 30	15
30.1 to 40	36
40.1 to 50	21
50.1 to 60	10
Over 60	3

(*Ibid*, p. 54.)

The same report shows that, in 365 trade unions for which data was secured, two-thirds of the members worked the year round, the remaining third being unemployed for some period during the year. The average time lost for all members of the 365 unions during the year was 1 month and 25 days (p. 162). The report says:

"While there is little accurate information available as to the exact number unemployed at any one time, there is enough to show that about 40 per cent. of our wage-earners suffer some unemployment every year, that on the average they lose ten weeks each, and that the loss in wages amounts to 20 per cent. of what the earnings would be were employment steady throughout the year." (p. 69.)

[5] Relation of Irregular Employment to the Living Wage for Women, Fourth Report of the N. Y. Factory Investigating Commission, 1915, Vol. ii., p. 513.

[6] *Survey*, Vol. xxxiii, p. 507, Feb. 6, 1915.

approximately 150,000 persons in more than 2,000 establishments scattered throughout the state, it was found that from 10 per cent. to 50 per cent. of the usual working force were added and displaced during the course of 12 months for various reasons. In other words, that proportion of the employees was unemployed during the year, in addition to time lost during employment.

The attempt of the Census Bureau in 1900 to obtain statistics of the length of unemployment has generally been regarded as unproductive of accurate results, but at least it has afforded corroboration of the indications given by other statistics of the seriousness of loss of time as a factor in determining the wage-earner's economic status. As summarized by the census report, "approximately four persons out of five who claimed gainful occupations were continuously employed throughout the census year, while the fifth person was idle for a period varying from one to 12 months."[7]

Some light on the total time lost by organized workers in a year is thrown by the monthly unemployment re-

[7] Twelfth Census of the United States, 1900; Occupations, p. ccxxxv. Excluding persons engaged in agricultural pursuits, professional service and domestic and personal pursuits, the statistics for persons 10 years of age or over, may be summarized briefly in the following table:

Classes of Occupation	Per cent. unemployed		
	1 to 3 months	4 to 6 months	7 to 12 months
Males			
Trade and transportation	48.4	35.7	15.9
Manufacturing and mechanical pursuits..	49.7	38.4	11.9
Females			
Trade and transportation	39.3	34.9	25.8
Manufacturing and mechanical pursuits..	50.0	35.4	14.6

ports from representative unions in New York State to the New York Department of Labor. These reports show the percentages of members idle on the last day of each month for the 11 years from 1904 to 1914. A monthly mean percentage is thus a composite day in each year, the average mean percentage for the 11 years being 22.[8] Thus it is indicated that the average union member lost out of 300 possible working days during the average year 66 working days, or about two and a half months.

Statistics for Specific Industries.—Statements of time lost by workers regardless of industry, location, or other factors, like statements of average wages, do not depict real conditions in an adequate manner. Seasonal and other variations in the regularity of employment offered, as well as causes affecting the character of the demand for labor and the employability of workers, result in differences in time lost among groups of workers. In order to understand the intensity of loss of working time as a factor in determining the economic status of the wage-earner, it is necessary to inquire into these variations as far as the available data will permit.

Without taking up at this point the question of the causes, but confining ourselves to a bare presentation of the available data showing the extent of the loss of time, it is important to note that the widest variations appear to be according to industry. When complete statistics as to the causes of loss in working time are

[8] Bulletin 69 of the New York Department of Labor, p. 5.

available, it is possible that the greatest variations will appear to occur on a different basis. For the present, however, statistics of time lost are shown chiefly by industries and trades.

MONTHS WORKED BY MALES DURING THE YEAR, 16 YEARS OF AGE OR OVER, EMPLOYED AWAY FROM HOME, BY GENERAL NATIVITY OF INDIVIDUAL AND BY INDUSTRY
(From the Reports of the Immigration Commission, Vol. 19)

Industry	Number reporting complete data	Per cent. working			
		12 months	9 months or over	6 months or over	3 months or over
Agricultural implements and vehicles	683	42.6	83.0	94.1	98.0
Cigars and tobacco	164	73.2	90.9	97.0	99.4
Clothing	1,135	37.8	73.7	95.4	98.9
Coal mining, anthracite	1,011	9.0	76.1	96.4	99.3
Coal mining, bituminous	3,928	16.8	46.9	88.1	99.0
Collars and cuffs	263	63.5	92.8	97.3	99.2
Copper mining and smelting	718	93.5	98.7	99.9	99.9
Cotton goods	2,037	42.9	79.1	92.3	97.9
Furniture	446	54.5	88.8	98.0	99.3
Glass	794	53.8	77.7	90.8	99.0
Gloves	336	80.4	92.6	98.8	100.0
Iron and Steel	4,550	20.0	44.1	75.0	94.2
Iron ore mining	295	60.3	83.7	95.6	99.3
Leather	805	38.6	65.2	87.1	96.6
Oil refining	889	62.7	79.6	97.3	99.4
Shoes	1,162	29.9	64.1	90.9	98.3
Silk goods	366	38.3	61.7	91.3	98.1
Slaughtering and meat-packing	1,447	54.7	80.1	96.8	99.4
Sugar refining	393	61.1	82.4	96.2	99.2
Woolen and worsted goods	767	37.3	67.0	89.8	97.7
Diversified manufactures	5,720	41.4	76.4	95.5	98.9
Total	27,909	37.1	67.6	90.5	98.0

Disregarding the Census unemployment statistics prepared according to industry as of too doubtful value for purposes of comparison, the most comprehensive data by industries are afforded by the reports of the Immigration Commission in 1909 for about 20 principal industries. These statistics afford an illuminating

picture of the workers' loss of time in the various industries. In all the 20 industries named, excepting bituminous coal mining, iron and steel, and leather manufacturing, 90 per cent. of the workers worked over 6

MONTHS WORKED DURING THE YEAR BY FEMALES 16 YEARS OF AGE OR OVER EMPLOYED AWAY FROM HOME, BY GENERAL NATIVITY OF INDIVIDUAL AND BY INDUSTRY

Industry	Number reporting complete data	Per cent. working			
		12 months	9 months or over	6 months or over	3 months or over
Agricultural implements and vehicles	82	59.8	75.6	92.7	90.8
Cigars and tobacco	37	62.2	78.4	94.6	94.6
Clothing	233	55.4	79.0	97.0	100.0
Coal mining, anthracite	15	*a*	*a*	*a*	*a*
Coal mining, bituminous	51	56.9	66.7	90.2	98.0
Collars and cuffs	134	61.9	92.5	95.5	100.0
Copper mining and smelting	37	81.1	91.9	97.3	100.0
Cotton goods	753	33.2	75.3	89.0	96.3
Furniture	88	63.6	89.8	96.6	98.9
Glass	36	47.2	69.4	86.1	97.2
Gloves	74	78.4	90.5	98.6	100.0
Iron and steel	134	56.0	71.6	87.3	93.3
Iron ore mining	4	*a*	*a*	*a*	*a*
Leather	53	50.9	86.8	100.0	100.0
Oil refining	57	75.4	86.0	96.5	98.2
Shoes	295	33.9	67.8	91.5	99.3
Silk goods	67	20.9	52.2	86.6	97.0
Slaughtering and meat-packing	151	64.2	86.8	96.0	99.3
Sugar refining	41	87.8	97.6	100.0	100.0
Woolen and worsted goods	293	33.8	64.8	88.4	96.6
Diversified manufactures	1,375	58.5	86.8	95.4	98.6
Total	4,010	50.6	79.8	93.0	98.0

a Not computed, owing to small number involved.

months. Only a little more than one-third of all the workers, however, worked steadily throughout the year and wide variations according to industry were evident. While over 90 per cent. of the workers in copper mining and smelting were employed during the 12 months, only

9 per cent. of anthracite coal miners were so employed. Two-thirds of the workers in all the industries named worked nine months or more, but in bituminous coal mining, iron and steel, leather, shoe, silk goods, and woolen and worsted manufacturing, less than two-thirds lost as little as three months time during the year. It must be remembered that these statistics show total loss of time, whether it be due to irregularity of employment, disability or other causes.

In the steel industry it has been calculated that the average worker loses at least 13 per cent. of the working year through causes over which he has no control. This calculation is based on a special federal investigation covering 90,757 male employes in 1910, a prosperous year, and does not allow for loss of time resulting from curtailment or closing down of plants because of depressions in less prosperous years. Out of the 52 weeks, the average steel worker lost at least five during the year. Only 63 per cent. of the steel workers were found to have had a maximum of 44 weeks of possible employment in 1910.

Some idea of the minimum lost time in coal mining may be gained from statistics of days when the mines were in operation. These statistics do not show, of course, time lost from any other causes than the condition of the industry. Assuming that there are 306 possible working days in the year, as a basis of comparison, the following table for the principal coal mining states and for all bituminous and anthracite mining indicates the average number of days lost in 1913:

DAYS LOST IN 1913 IN COAL MINING DUE TO INACTIVITY OF MINES

(Compiled from U. S. Geological Survey Coal Production in 1913, p. 751.)

State and Group	Average number employed	Number of days lost
Bituminous:		
Alabama	24,552	51
Colorado	11,990	77
Illinois	79,529	117
Indiana	22,235	116
Iowa	15,757	111
Kansas	12,479	109
Kentucky	26,332	94
Missouri	10,418	119
Ohio	45,815	100
Oklahoma	9,044	109
Pennsylvania	172,196	39
Tennessee	11,263	65
Virginia	9,162	26
West Virginia	74,786	72
Wyoming	8,331	74
Pennsylvania anthracite	175,745	49
Grand total *a*	747,644	68

a Includes all States in which coal is mined.

The above statistics afford an idea of the differences in time lost in various states. In Illinois, Indiana and Missouri the time lost because of the inactivity of mines was nearly three months, whereas in the Pennsylvania bituminous mines it was about a month and a half, and in Virginia about a month. Bituminous coal miners in the United States on an average could not work over nine months in the year, and anthracite miners ten months. It should be remembered, however, that 1913 was a record year for anthracite workers and was exceeded by bituminous miners since 1890 in only three years—1899, 1900 and 1907.[9]

[9] U. S. Geological Survey Coal Production, 1913, Part II., p. 750.

The New York Factory Investigating Commission found that loss of time was suffered by employees in practically all industries, occupations and plants. This was especially true in the lower wage levels. Thus, workers receiving low rates of pay lost, as a general rule, more time than workers receiving rates above the average. Dr. Howard B. Woolston, the director of investigation for the Commission, in a summary of the results of the study,[10] gives the following instances:

"In mercantile establishments, only 99 persons were quoted at rates under $3 a week, but in a typical week selected 2,040 persons actually received less than this amount. In the confectionery industry, 13 per cent. of the workers for whom rates were given were engaged at less than $5; but 22.5 per cent. failed to find so much in their pay envelopes in a given week. Of 15,000 female factory workers in New York City, nearly 8,000 received less than $6.50 during a busy week last winter, and 4,000 got less than $5. Out of 42,000 persons of both sexes employed in all lines (including 900 adult men and 12,500 women over 18 years old), more than half were paid less than $8. About 12,000 of these low-paid workers had more than one year of experience in the trade, and 10,000 were in occupations demanding some skill and responsibility in the making or selling of goods. The simplest explanation for this difference between expectations and receipts is that many persons did not work full time. It was actually found that nearly 20 per cent. of all those em-

[10] *The Survey*, Vol. xxxiii, pp. 505-511.

ployed lost one day or more during the week recorded. The men and boys averaged 5.8 work-days, the women and girls 5.6."

FLUCTUATION OF EMPLOYMENT AMONG 14,325 WOMEN WORKERS IN MASSACHUSETTS CANDY, CORSET AND BRUSH FACTORIES AND LAUNDRIES AND DEPARTMENT STORES.

(Compiled from First and Second Annual Reports of the Massachusetts Minimum Wage Commission.)

	Per cent. of workers employed:				
Months	Candy factories, 3,326 workers in 14 plants	Laundries, 2,961 workers in 36 plants	Department stores, 6,449 workers in 22 stores	Corset factories, 1,198 workers in 8 plants	Brush factories, 391 workers in 14 plants
1	100.0	100.0	100.0	100.0	100.0
2	76.0	77.1	90.1	99.7	100.0
3	63.1	66.4	84.4	99.7	100.0
4	53.0	57.6	79.1	99.2	99.7
5	44.7	49.1	74.0	96.7	99.5
6	39.6	45.7	70.6	95.6	99.2
7	35.2	40.9	67.3	94.8	98.5
8	31.4	36.2	62.7	93.7	97.2
9	29.4	33.0	58.7	92.0	96.2
10	26.4	30.2	53.9	89.6	94.6
11	21.8	25.9	44.5	77.0	85.7
12	2.6	9.4	19.7	25.7	52.7

Of 4,000 women employed in the millinery shops in the State of New York that were investigated, only 110 were on the pay-roll in one shop for the full 52 weeks. Examinations of the pay-rolls showed that in the entire year there were only 11 weeks in which the force employed did not fall 10 per cent. or more below the maximum, and only 25 weeks in which it did not fall below the maximum by 25 per cent. or more. For large numbers

of milliners, employment for only six months in the year in their trade is the ordinary expectation.[11]

The Massachusetts Minimum Wage Commission has published statistics showing the percentages of workers employed for specified numbers of months during a year in representative candy factories, corset factories, laundries and department stores in that state. Stated in terms of the loss of time, over 60 per cent. of the confectionery workers, about 55 per cent. of the laundry workers, nearly 30 per cent. of the department store workers, but less than 5 per cent. of corset and brush makers, lost six months of working time. Nearly 70 per cent. of confectionery workers, 66 per cent. of laundry workers, over 41 per cent. of department store workers, and less than 4 per cent. of brush makers, lost three months of their working time. A small proportion of them worked steadily throughout the year. The wide difference in the lost time between workers in candy factories, laundries and department stores on the one hand, and workers in corset and brush factories, on the other hand, was probably due in large measure to the adoption of a different method of presenting statistics. In the former case, the wage records of all of the employees, except those working less than four weeks, were included; in the latter case, the wage records of only those whose payments extended over a period of eleven months or more previous to the taking of the transcript of the pay-roll were included. Hence, in

[11] H. B. Woolston—Wages in New York. *The Survey*, February 6, 1915, pp. 507-508, quoting results of investigation by Committee on Woman's Work of Russell Sage Foundation.

corset and brush factories lost time for a selected group consisting of the steadiest workers is shown, and practically all of those who, for any one of a variety of reasons, may have left the industry are eliminated. In the candy factories, laundries and department stores, of course, "it is not clear that the amount of absence shown may be called strictly unemployment," as the Commission points out,[12] nor do the statistics take into any account any other work those absent from the pay-roll may have done. But giving full weight to voluntary withdrawals of workers, the statistics do indicate that the loss of time by workers in the three industries named is extremely large and that, for one reason or another, the necessity was created for a large proportion of the workers either to get employment elsewhere in order to sell their labor continuously throughout the year or to remain idle.

Another illustration of the amount of time lost by women workers is given by the results of a recent investigation into working conditions in Indiana mercantile establishments and garment factories which was made by the Federal Bureau of Labor Statistics, in cooperation with the Federal Commission on Industrial Relations and the Indiana Commission of Working Women. Over 69 per cent. of the women employed in mercantile establishments in Indianapolis, Terre Haute, Evansville, Fort Wayne, South Bend and Lafayette reported loss of time. This loss of time averaged 13.9

[12] Second Annual Report of the Massachusetts Minimum Wage Commission, p. 73.

per cent. of the weeks of possible work for those unemployed. Over 87 per cent. of the women employed in garment factories in all of the same cities named above, with the exception of Lafayette, reported lost time which averaged 15.1 per cent. of the possible weeks of work.[13]

The above statistics indicate roughly the seriousness of lost working time measured in weeks or months. They do not tell the complete story, however. Even within periods of weeks, lost time is a serious factor. Some idea of the loss of time by workers even when regularly employed is suggested in certain industries by the Federal Bureau of Labor's Woman and Child Wage-Earners' report. This report presented statistics based on the study of pay-rolls for a representative week, and showed that workers in cotton mills in New England lost from 13 to 20 per cent. of their full pay time and in Southern mills from 20 to 24 per cent., not including doffers, who lost 60 per cent. Statistics of loss of time during a representative week, as shown by the same investigation, may be summarized thus for broad silk, silk ribbon and throwing mills:[14]

It was found that women workers in the men's cloth-

[13] Hours, Earnings and Conditions of Labor of Women in Indiana Mercantile Establishments and Garment Factories, Bureau of Labor Statistics Bulletin No. 160, 1914.

[14] Woman and Child Wage-Earners, Vol. iv, p. 140.

Sex and Age Groups	Per cent. of full time lost	
	New Jersey mills	Pennsylvania mills
Males, 16 years and over	5.6	17.6
Females, 16 years and over ..	8.5	22.7
Males under 16 years	12.7	14.7
Females under 16 years	9.5	14.2

ing industry in New York, Chicago, Rochester and Philadelphia lost from 10 to 13 per cent., and in Baltimore 20 per cent., of their full time in a representative week. The Connecticut State report shows that in cotton mills women workers lost 12.3 per cent., in silk mills, 15.5 per cent., and in metal trades, 12.3 per cent. of their full time earnings in a representative week.[15]

Miss Van Kleek in a study of artificial flower makers in New York City concluded that "the tax made by irregular employment on the income of flower makers amounts to about two dollars a week—a sum by no means insignificant."[16] In her story of women in book binding, she states that even allowing for income derived from other occupations during unemployed periods, the loss from unemployment is more than $50 in 12 months. Twice she found the average income of a bindery girl, from all occupations, to be about $300, the loss of time approximating two months. "This," says Miss Van Kleek, "is not a small loss when the fact is realized that very few bindery girls earn $500 or more in a year."[17]

The recent investigation for the wage scale board of the dress and waist industry in New York City, conducted in 1912 by Mr. N. I. Stone, afforded some illuminating data. The fact that statistics of employment do not fully indicate loss of time, as exprest in earnings, is clearly shown, as well as the fact that there

[15] Quoted by C. E. Persons—Women's Work and Wages, *Quarterly Journal of Economics*, February, 1915, p. 210.

[16] Artificial Flower Makers, p. 72.

[17] Women in the Book Binding Trade, p. 86.

is a great loss of earnings through loss of time. There were employed in the 260 shops, whose pay-rolls were studied, a maximum of 20,524 people. The average employment throughout the year was 83.3 per cent.; that is, if the maximum number employed in any week (20,524) had been given an equal chance they would have had employment 83.3 per cent. of the year, or over 43 weeks. "That does not mean, however," says the report, "that they would be fully employed those weeks; it means merely that they would be on the pay-roll for that length of time, but the actual amount of work they would have an opportunity of doing is shown by the average annual wage percentage, which was 73 per cent. This percentage is based on the wages actually paid out from week to week and is necessarily smaller than the percentage of people employed because workers, especially those paid by the piece, may be on the pay-roll for a week, but be paid only for the work actually done by them, which may last only a few hours each day or a few hours for the entire week, especially when work is not plentiful."[18] There is a tendency to keep as many workers on the pay-roll as possible in dull seasons in order to maintain the shop organization.

The variations in loss of working time according to industry and trade are also suggested in the statistics of unemployment among organized workers published by the state labor bureaus and departments of New

[18] United States Bureau of Labor Statistics Bulletin, No. 146—Wages and Regularity of Employment and Standardization of Piece Rates in the Dress and Waist Industry, New York City, p. 161.

York and Massachusetts. These statistics are not in the form of days lost from work, but indicate the proportion of union members idle on specified days in each year. They appear to corroborate the variations shown in the data already referred to. For example, the five-year average for 1910-1914 of the mean monthly percentage of idleness in representative trade unions in certain industries in New York State was as follows:[19]

Building and stone working, etc.	28.2
Transportation	11.1
Clothing and textiles	33.1
Metals, machinery, etc.	16.7
Printing, binding, etc.	6.7
Woodworking and furniture	20.3
Food and liquors	10.8
Theaters and music	16.2
Tobacco	14.3
Restaurants, trade, etc.	7.1
Public employment	1.0
Stationary engine tending	2.0

Computing the mean or average time lost on a basis of 300 possible working days during the year, it appears that in the building and stone working industry the average worker lost approximately 85 working days, and the clothing and textile worker 100 days, as contrasted with less than 21 days for the worker in printing and binding, restaurants, trade, public employment and stationary engineer tending.

Statistics for Specific Trades and Occupations—Variations in loss of working time occur not only according to industry, but also according to trades and according to occupations within industries. The statis-

[19] Compiled from Bulletin No. 69 of the New York Department of Labor.

tical data on these points are meager, but there are enough at least to indicate the presence of the condition and to emphasize its grave import.

An illustration of this condition among the different trades is given in statistics for 365 trade unions in the state of New York for 1910, as presented by the New York Commission on Employers' Liability and Unemployment. The statistics are based on replies received in response to inquiries sent to unions and are doubtless, in some instances, inexact estimates. They are sufficient, however, to show in an approximate manner the amount of lost working time which even the organized, and in most instances, highly paid worker, suffers.[20] (See table on p. 96.)

Interpreted in terms of lost earnings,[20a] these statistics of loss of working time show that the trades which suffered the greatest loss are the masons and bricklayers, pavers and rammer men, millwrights and stage hands, who were able to earn only from 50 to 60 per cent. of what they could have earned if they could have worked steadily throughout the year. Longshoremen, building laborers, and marine transport workers were able to earn from 60 to 70 per cent.[21]

In the building trades, according to the testimony of union witnesses at the 1914 hearing of the Commission on Industrial Relations, bricklayers work about 60 per cent. of the working time in a normal year, but in 1913

[20] Third Report of the New York Commission on Employers' Liability and Unemployment, 1911, p. 162.

[20a] *Ibid.*, p. 54.

[21] The following tabulation classifies the workers in the various trades and

they worked about 40 per cent.; steamfitters in a normal year lose little time, but in 1913 and 1914 half of the trade was idle, most of the plumbers work about six months of a year; about 50 per cent. of the sheet metal workers work steadily the year round, the other 50 per cent. losing from 6 to 10 months time; carpenters lose on an average two months in a normal year, and the same condition prevails among tile layers.[22]

Not only are there variations in the loss of time according to industry and trades, but variations occur in departments and in occupations in the same industry. It is a well-known fact that in the iron and steel industry, for example, there are wide variations as to operating time in the different mills or departments.

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industries according to loss of earnings due to loss of working time:

TRADES IN WHICH THE PERCENTAGE OF ACTUAL TO POSSIBLE EARNINGS WAS

Over 90 per cent.	From 70 to 80 per cent.
Barbers	Painters, decorators and paperhangers
Retail clerks	Clothing and textiles
Vehicle Workers	Carpenters and joiners
Railway employees	Teamsters
Stationary engineers and firemen	Stonecutters
Blacksmiths and boilermakers	Cement workers
Hotel and restaurant employees	Electrical Workers
From 80 to 90 per cent.	From 60 to 70 per cent.
Tobacco	Longshoremen
Municipal employees	Building laborers
Metal workers	Marine workers
Glass workers	From 50 to 60 per cent.
Printers	Masons and bricklayers
Brewery workers	Stage-hands
Woodworkers	Pavers and rammermen
Molders	Millwrights

[22] Hearings on Building Trades of New York City.

PER CENT. OF MEMBERS OF TRADE UNIONS WHO WORK THE YEAR ROUND, AND THE AVERAGE TIME LOST BY MEMBERS

Trade	Number of trade unions	Per cent. of members working year round (Averages)	Average time lost by members
Railroad and railway employees	44	92.0	3 weeks
Metal workers	21	73.9	1½ months
Painters, decorators and paper-hangers	18	29.3	3½ months
Glass workers	4	40.5	3 1-3 months
Butchers	4	91.0	2 months
Engineers and firemen (stationary)	9	96.6	6 days
Plumbers, steam and gas fitters	10	70.0	2 months
Clothing and textiles	18	38.6	3 months
Letter carriers and postoffice clerks	21	100.0	None
Carpenters and joiners	31	60.5	2¼ months
Longshoremen	3	41.3	2 1-3 months
Teamsters and drivers	4	75.7	½ month
Stone workers	3	36.6	3 months
Printing and bookbinding	24	86.5	25 days
Cement workers	4	47.5	3 months
Boilermakers and blacksmiths	6	80.0	½ month
Brewery workmen	8	97.0	½ month
Bakers and confectioners	6	86.0	20 days
Building employees (miscellaneous)	8	24.0	3½ months
Masons and bricklayers	17	16.0	5 months
Wood-workers	5	65.4	1½ months
Stage-hands	3	33.3	4 months
Molders	5	57.4	1½ months
Vehicle-workers	4	100.0	5 days
Tobacco-workers	12	63.5	1 1-3 months
Machinists	6	93.3	10 days
Barbers	10	97.3	4 days
Pavers, rammermen, etc.	3	....	6 months
Marine-workers	7	43.5	4 months
Electrical-workers	2	87.0	None
Millwrights	2	57.5	3½ months
Hotel and restaurant employees	4	67.2	1½ months
Musicians	4	25.7	4½ months
Retail clerks	3	100.0	None
Miscellaneous and unclassified	32	66.5	1 2-3 months
Total	365	66.6	1 month, 25 days

In one plant, according to the Federal Report on Conditions of Labor in the Iron and Steel Industry, one rolling mill unit operated 18.5 weeks in a year while another operated 38.1 weeks during the year. In another plant one rolling mill unit operated 23 weeks and another 45.9 weeks. The following table from the report shows for each of the five principal departments the distribution of the employees according to the number of weeks their respective plant units operated in 1910:[26]

CLASSIFIED NUMBER OF WEEKS DURING WHICH DEPARTMENTS OF STEEL PLANTS OPERATED IN 1910, AND PER CENT. OF EMPLOYEES AFFECTED—ALL DISTRICTS[27]

Classified Number of Weeks in Operation	Per. cent. of employees according to operating time in					
	Blast furnaces	Bessemer converters	Open-hearth furnaces	Rolling mills, mechanical	Rolling mills, hand	All departments
Weeks						
Under 20	2.0	...	0.2	0.5	1.7	1.2
20 and under 24 ..	3.1	3.3	1.9	2.7	0.7	2.3
24 and under 28 ..	1.2	3.6	1.6	2.1	2.4	1.9
28 and under 32 ..	3.3	...	3.0	1.0	3.4	2.5
32 and under 36 ..	2.5	6.7	2.7	5.0	8.3	4.6
36 and under 40 ..	8.8	9.2	2.6	10.6	14.3	9.4
40 and under 44 ..	17.3	11.5	1.7	18.4	18.2	15.0
44 and under 48 ..	18.0	17.2	29.7	31.3	29.6	25.4
48 and over	43.9	48.4	56.7	28.2	21.2	37.6
Number of employees	30,537	5,510	13,887	22,552	18,271	90,757

The variation in lost time according to occupations within certain industries was also shown by the reports of the Massachusetts Minimum Wage Commission. In corset factories, for example, over 53 per cent. of workers were found to have been employed steadily

[26] Conditions of Employment, Iron & Steel Ind., Vol. iii, pp. 212-13.

[27] The detailed tables of which this is a summary are shown in Appendix i, p. 548, of this report.

throughout the year at ironing, while only 11.8 per cent. of the menders and 14.3 per cent. of the flossers were steadily employed.[28] In brush factories, 61.6 per cent. of finishers were employed throughout the year as contrasted with 43.1 per cent. of those engaged in setting, and only 16.7 per cent. in soldering.[29] In these two industries, it has already been noted, employment data were obtained only for those whose names were on the pay-roll during the 12 months. In candy factories, where all of the workers were included, over one-tenth of the nut sorters worked 12 months, as contrasted with less than 1 per cent. of the machine tenders and about 1 per cent. of dippers.[30] In laundries, about 3 per cent. of all workers engaged in shaking and 7.3 per cent. in collar ironing and finishing worked throughout the 12 months, while 20 per cent. of those engaged in sewing and mending, 22.2 per cent. in bosom press operating, and 23.5 per cent. in hand washing were steadily employed throughout the year.[31] The same character of statistics for 6,449 department store "regulars" (*i.e.*, exclusive of the additional force employed before Christmas and Easter and in other busy times), is of particular interest. Pay-rolls of twenty-two department stores, chiefly the large establishments in Boston, and exclusive of five- and ten-cent stores, were covered in the Minimum Wage Commission's report. The following table shows the fluctuation in employment by occupations:

[28] First Annual Report, p. 56.
[29] *Ibid.*, p. 34.
[30] Second Annual Report, p. 49.
[31] *Ibid.*, p. 82.

FLUCTUATION OF EMPLOYMENT AMONG 6,449 "REGULAR" WORKERS IN MASSACHUSETTS DEPARTMENT STORES, BY OCCUPATIONS [32]

Occupation	Per cent. of workers employed for—		
	12 months	9 months	6 months
Saleswomen	18.0	61.8	73.4
Office employees	39.3	70.2	78.6
Counter cashiers and examiners	15.3	41.8	57.3
Messengers and bundlers	8.1	31.7	48.9
Alteration workroom	5.9	65.6	75.7
Millinery workroom	3.6	35.9	52.1
Stock girls	14.5	43.6	58.2

In the dress and waist industry in New York City it was found that a greater amount of time was lost by piece-workers than by week-workers, altho the average percentage of employment was practically the same. In four representative shops, two manufacturing low-grade ($9 per dozen) waists and two medium grade ($16.50 to $36 per dozen) waists, the following condition was found to prevail:

Grade of Shop	Per cent. average weekly wage is of highest weekly wage	
	Week-workers	Piece-workers
$9 grade shop	71	68
Medium grade shop	77	62

This condition prevailed in shops where both piece- and time-workers are employed and which are known as piece-work shops. In shops where time-work prevails, the differences in the employment and loss of wages by the two classes of workers are much more pronounced, the tendency being to retain only the best workers dur-

[32] Compiled from Second Annual Report of Massachusetts Minimum Wage Commission, p. 124. The statistics exclude all employees employed for less than a month during the year.

ing the slack season and to drop or to take on other workers as the trade demands.[33]

The Extent of Unemployment

Not until within recent years has the seriousness of the problem of unemployment been comprehended sufficiently to create a demand for some actual measure of the number of unemployed workers at any given time or during any period in the nation as a whole, or in a state, an industry or trade. Gradually, in response to this need for basic facts, an appreciable amount of data is being accumulated. Thus far the process of collecting this information has been so unorganized, so varied in its methods and scope, and so uncertain as to the time and the extent of its collection, that there is yet no statistical basis for even a very rough estimate of the extent of unemployment in the United States. All students of the problem of unemployment have early discovered themselves to be in the same situation as the British Royal Commission on the Poor Laws, which, by the way, had far more elaborate sources of information available than exist in this country. The Commission said:

"We have found ourselves unable to answer two elementary questions. There are no statistics available which enable us to compute, even within hundreds of thousands, how many persons are at any one time simultaneously in distress from unemployment, or whether this number is or is not greater, relatively or

[33] Wages and Regularity of Employment in the Dress and Waist Industry, New York; U. S. Bureau of Labor Statistics, Bulletin No. 146, pp. 174-176.

absolutely, than the corresponding numbers for other countries at the present time, or for our own countries at previous times."[84]

The actual number of unemployed persons at any given time or place is a matter of less importance in considering the problem of unemployment, than is the interpretation of the problem in terms of working time lost by workers, its effect upon the workers, or its economic and social causes. It is important, however, in this respect, that the magnitude of the problem should be indicated in a numerical manner. Not only is it necessary to know how many are unemployed in order to know what measure of relief is needed to keep them from physical suffering and actual starvation, but it is necessary to have some means of measuring the maximum supply of labor for which there appears to be no demand, or, if there be a demand, of indicating the inadequacy of existing methods of equalizing demand and supply, of "bringing the man and the job together." Again, statistics of unemployed persons are valuable—even necessary—as a means of impressing upon the student, the legislator, and the public generally the sheer magnitude of the fact of unemployment as a social problem.

Altho almost yearly there appear accounts in the press of multitudes out of work, exact information as to the amount of unemployment is lacking. For, it is safe to say, the actual number out of work at any time—even in periods of normal activity—is much greater than is

[84] Minority Report, p. 570.

ordinarily supposed. The average well-to-do citizen is scarcely aware of the existence of this problem of industry, and his attention is rarely called to it except in times of unusual depression by the appeal of the seedy-looking individual on the street or by the demands made upon his purse by agents of charitable and religious organizations. There is an urgent necessity for more complete and more exact data, not alone for the purpose of knowing what the situation is in order to discover adequate remedies, but also for the purpose of awakening public attention to the existence of the problem itself.

Some idea of the extent of unemployment is suggested, however, by statistics that have been obtained in this country by the Federal Bureau of Labor Statistics. The results of the Bureau's investigation into the amount of unemployment in New York City in February, 1915, appeared to indicate an estimate of the total number of unemployed at that time of approximately 338,000. It closely corroborated an investigation two months earlier by the Metropolitan Life Insurance Company which indicated that something like 420,000 were out of employment. These figures represented an abnormal situation because they were obtained in a period of industrial depression.[35] The report of the mayor's committee on unemployment in New York City estimated that there were 200,000 more unemployed in December, 1914, than in the corresponding month in 1913. It should

[35] A later investigation conducted on the same plan and in the same area by the Bureau of Labor Statistics indicated that the number of unemployed in September, 1915, was 164,500. In September the seasonal demand for labor was much greater and was augmented by a greater industrial activity.

also be remembered that there is a tendency for those out of work to flock from smaller localities to the larger cities; many deliberately relinquish positions in small towns and cities in the hope of bettering themselves financially and in order to satisfy cravings for a "livelier" manner of living. Satistics of unemployed persons in large cities, especially New York, must be considered with this well-known fact in mind.

The Bureau of Labor Statistics unemployment inquiry in New York was followed by similar investigations in 27 other cities in 1915.[36] The results of these inquiries are summarized in the tabulation on p. 104.

In the 436,418 families visited, 693,691 wage-earners were found. Of this number 80,173, or 11.6 per cent. of all wage-earners in the families visited, were wholly unemployed, and in addition thereto 116,623 part-time workers, or 16.8 per cent., were reported as unemployed. The highest percentages of unemployment were found in Duluth, Minnesota, and Portland, Oregon, where approximately 20 per cent. of the wage-earners were out of work. The lowest percentages of unemployment were found in Bridgeport, Connecticut, and Ogden, Utah, where less than 5 per cent. were unemployed. Among cities showing the highest percentages of part-time workers were Wilkes-Barre, 32.3 per cent.; Pittsburgh, 29 per cent.; Milwaukee, 28.9 per cent.; Bridgeport, 19.9 per cent.; Philadelphia, 19.6 per cent.; Duluth,

[36] These investigations were made for the Bureau of Labor Statistics by agents of the Metropolitan Life Insurance Company who visited the homes of wage-earners where policyholders live.

UNEMPLOYMENT IN 27 CITIES AS SHOWN BY INVESTIGATION DURING MARCH AND APRIL, AND IN JUNE AND JULY, 1915 [87]

Cities	Number of families canvassed	Number of wage-earners in families	Unemployed		Part-time wage-earners	
			Number	Per cent.	Number	Per cent.
Boston	46,649	77,419	7,863	10.2	13,426	17.3
Bridgeport	8,144	12,533	537	4.3	2,493	19.9
Chicago	96,579	157,616	20,952	13.3	16,575	10.5
Cleveland	16,851	24,934	2,348	9.4	3,060	12.3
Duluth	1,383	2,089	425	20.3	371	17.8
Kansas City	14,890	22,512	2,815	12.5	1,979	8.8
Milwaukee	8,813	13,112	1,030	7.9	3,788	28.9
Minneapolis	2,206	3,449	476	13.8	183	5.3
Philadelphia	79,058	137,244	14,147	10.3	26,907	19.6
Pittsburgh	36,544	53,336	5,942	11.1	15,474	29.0
St. Louis	65,979	104,499	14,219	13.6	14,317	13.7
Springfield, Mo.	1,584	2,284	162	7.1	32	1.4
St. Paul	2,515	4,135	582	14.1	142	3.4
Toledo	7,233	10,312	1,102	10.7	1,801	17.5
Wilkes-Barre	11,453	18,884	1,200	6.4	6,104	32.3
Butte, Mont.	3,557	4,229	298	7.0	536	12.7
Los Angeles, Cal.	5,621	7,227	822	11.4	1,744	24.1
Oakland, Cal.	2,927	4,256	510	12.0	1,144	26.9
Ogden, Utah	581	887	40	4.5	127	14.3
Portland, Ore.	1,783	2,347	469	20.0	406	17.3
Sacramento, Cal.	1,288	1,856	170	9.2	439	23.7
Salt Lake City, Utah	1,052	1,664	173	10.4	295	17.7
San Diego, Cal.	1,466	1,828	305	16.7	533	29.2
San Francisco, Cal.	5,320	7,749	1,206	15.6	1,971	25.4
Seattle, Wash.	10,112	13,473	1,713	12.7	1,992	14.8
Spokane, Wash.	1,012	1,259	210	16.7	257	20.4
Tacoma, Wash.	1,818	2,558	457	17.9	527	20.6
Total	436,418	693,691	80,173	11.6	116,623	16.8

17.8 per cent.; Toledo, 17.5 per cent.; Boston, 17.3 per cent., and the California cities.

Of less value in showing the actual proportion of wage-earners out of work, but containing other suggestive data, are estimates for March, 1914, obtained

[87] U. S. Bureau of Labor Statistics: Monthly Review, November, 1915, pp. 6-7. The investigations in the first 15 cities in the list given in the table were made in March and April, 1915, and in the last 12 cities in the list were made in June and July, 1915.

by the Federal Commission on Industrial Relations from municipal police departments, hitherto unpublished. These estimates, so far as they relate to the actual number of unemployed males, are probably underestimates and were supplied to precinct heads by officers on their various "beats." They are summarized in the following tabulation:

STATEMENT OF POLICE OF AMERICAN CITIES REGARDING NUMBER AND CHARACTER OF THE UNEMPLOYED MALES IN MARCH, 1914

City	Number of precincts reporting	Total number of unemployed	Per cent. of total males who are: Residents of precincts	Skilled workmen	Foreigners	Actually seeking work
Boston	18	8,360	90.5	17.1	82.9	92.6
New York	89	90,793	*a* 79.6	*a* 43.9	*b* 59.8	*b* 75.7
Newark	7	3,186	64.7	41.7	53.2	82.9
Jersey City	7	2,493	89.7	26.8	50.6	*a* 76.2
Buffalo	14	13,312	56.6	30.6	42.4	83.3
Philadelphia	40	26,921	86.3	36.5	44.8	75.9
Baltimore	8	7,516	91.6	21.8	30.0	82.0
Milwaukee	5	7,652	89.2	25.3	63.5	86.6
Chicago	41	45,730	83.5	28.0	70.4	77.4
Minneapolis	6	5,250	79.5	15.6	34.4	*a* 69.5
St. Louis	6	10,411	93.6	26.6	32.5	83.8
Kansas City	9	2,245	53.2	28.4	22.4	85.1
San Francisco	10	14,110	53.5	21.8	*a* 41.4	86.1

a No data from one precinct.
b No data from two precincts.

Disregarding the actual figures for unemployed persons, the foregoing table suggests some significant considerations: (1) The proportion actually seeking work was so large as decisively to refute the assertion frequently heard that the unemployed are chiefly those who do not want to work and are charity seekers. It must

be remembered that these figures are given by policemen who can not be accused of overestimating the motives of the idle men on their "beats." (2) The percentage of unemployed who were residents of the precincts in which data were obtained varied according to cities, but with the exception of some localities in sections where the seasonal labor problem was most acute, the proportion at home was extremely high. (3) About three-fourths of the unemployed were unskilled workmen, and, except in the inland cities, the majority of these were foreign-born.

The Federal Bureau of Labor's Cost of Living study found that of 24,402 wage-earners who were heads of families with annual incomes of less than $1,200, 49.81 per cent. were involuntarily idle some time during 1901. The statistics by states are perhaps not representative enough of local conditions because in some states the number of families was too small, but the variation in proportion of idle heads of families according to geographical divisions suggested important differences in the intensity of the problem in different sections of the country, as follows:[38]

	Total heads of families	Per cent. idle during year
North Atlantic States	13,218	49.30
South Atlantic States	2,050	51.71
North Central States	7,166	48.42
South Central States	1,135	74.98
Western States	833	30.85
Total	24,402	49.81

[38] Eighteenth Annual Report of the Commissioner of Labor, 1903, pp. 42, 286, 287.

The statistics furnished by representative unions in New York and Massachusetts and published in the public reports of these states are illuminating because they indicate in a general way the extent of unemployment in large bodies of organized workers where precautions against unemployment are more possible and successful than among unorganized workers. The New York reports from representative unions show that the mean monthly percentage of idleness for the eight-year period 1907-1914 was 22, varying from 16.2 to 29.7.[39] Similar reports from practically all unions in New York state at the end of September for each year from 1897 to 1914 showed an average for the 18-year period of 11 per cent., varying from 4.7 to 24.4.[40]

The foregoing statistics suggest, at least, the magnitude of the problem of unemployment. The union records published by the state governments of New York and Massachusetts indicate a considerable extent of unemployment among large groups of organized workers during periods of several years; it will be shown in the succeeding chapter how the percentages of unemployed union members has varied according to years of industrial activity and depression. The surveys of unemployment in the spring of 1915 were made in a period of industrial depression, and thus are illustrative of the extent of unemployment when unemployment was unusually prevalent. On the other hand, the recent period of unusual industrial activity,

[39] Bulletin of the New York Department of Labor, No. 69, p. 5.
[40] *Ibid.*, p. 14.

which began in the summer of 1915, has brought about an employment situation almost unprecedented in the last decade. The restriction of immigration resulting from the European conflict, the stimulation of munitions manufactures by European "war orders," the increased domestic demand for the products of nearly all basic industries, and the unusually large harvests, offered opportunity for work to practically every available worker in the industrial centers and sections of the United States. "Activity in the market for labor," was the comment of one observer, "during December, 1915, was greater than for any December since 1906. In view of the scarcity in immigrant labor, which now appears to prevail in most industrial localities in the Eastern States, it may not be going too far to say that the employment situation was even better than for any similar month in the last fifteen or twenty years." [41] The same authority published monthly statistics from public free employment offices in the principal industrial centers which afforded unmistakable signs of the marked difference in the employment situation in 1915 and 1916.[42] The following table, for example, showed a marked contrast between the situation in January, 1916, and January 1915, the number of applicants for work placed in jobs being used as the index of the situation. (See table on p. 109.)

The fact that there were applicants for work even in the "boom" period which existed in the winter of 1915-

[41] *The Labor Gazette*, Washington, D. C., February, 1916, p. 45.
[42] *Ibid.*, March, 1916, p. 62.

NUMBER OF WORKERS PLACED IN JOBS BY PUBLIC FREE EMPLOYMENT OFFICES IN VARIOUS CITIES, JANUARY, 1915, COMPARED WITH JANUARY, 1916, AND PER CENT. OF INCREASE OR DECREASE

	1915	1916	Per cent. of increase
Fall River, Mass.	67	111	65
New Haven, Conn.	103	312	202
Hartford, Conn.	103	380	268
Springfield, Mass.	209	683	227
Boston, Mass.	683	1,485	117
Detroit, Mich.	704	2,831	302
Kalamazoo, Mich.	175	362	103
St. Paul, Minn.	415	856	106
Duluth, Minn.	453	772	70
Minneapolis, Minn.	903	1,141	26
St. Joseph, Mo.	321	463	44
Cincinnati, Ohio	2,384	887	63*a*
Cleveland, Ohio	3,922	3,339	10*a*
Columbus, Ohio	641	1,147	79
Dayton, Ohio	329	730	122
Toledo, Ohio	336	1,149	257
Milwaukee, Wis.	713	1,436	101
Kansas City, Mo.	173	102	41*a*
Fort Worth, Tex.	143	155	8

a Decrease.

1916, however, is significant. At that time there was frequent comment in the trade and commercial press on the possibility of an actual scarcity of labor in the United States; yet there undoubtedly were unemployed persons capable of performing labor when the opportunity should present itself, even in a period of restricted immigrant labor supply and unusual demand for labor. In some industries and localities where the demand for labor as plainly abnormal, a scarcity in the labor supply was experienced, as increases in wages and decreases in the length of the working day seemed to indicate. Much of the increased demand was, however,

met by full time employment of the existing labor force.[43]

The condition seems to be indicated, therefore, that, only when the supply of foreign labor is cut off and industries are operating at an abnormal capacity, is there nearly enough work for all in this country—if by "work" is meant the opportunity to labor regularly. It is impossible to escape the conclusion that in periods of so-called "normal" industrial activity, as well as in periods of depressions, with an unrestricted immigrant labor supply and without adequately organized and administered employment offices, a large number of wage-earners must be unemployed because of the lack of opportunity to be employed, to say nothing of other causes which may prevent them from working regularly.

[43] *The Labor Gazette*, in its December, 1915, review of the employment situation, made the following comment: "A careful review of conditions can not, of course, warrant the conclusion that there is a general scarcity of labor in the United States, in spite of the greatly increased industrial activity and the diminished immigrant supply. There does appear to be a scarcity in certain trades and in certain sections and localities where industrial activity has assumed abnormal proportions. Thus there seems to be an inadequate supply of mechanics and skilled metal workers because of the abnormal demand resulting from a suddenly increased production of munitions and a greatly increased activity in steel and allied manufactures, especially in certain localities. Again, in some sections where industrial activity has been below normal for some years, the sudden demand for labor has exhausted the local supply. . . . But such conditions as these are apparently met, for the most part, by gradual adjustments. Trades and occupations in which a scarcity has been evidenced are being recruited, and labor is being shifted from some sections to others as the opportunity for advantageous employment becomes known. Furthermore, much of the increased demand for labor is only an apparent demand, so far as the need for an actually larger number of workers is concerned. More labor is being performed and more wages—and in some cases higher wages—are being paid, but these are merely indications of a condition where the "slack" of irregular employment is being taken up. In other words, many plants operating for several years on part time are now operating steadily and regularly, and much of the present increased production is made possible with the same force or with a slightly increased force." (p. 14.)

Note.—Three other reports on the number of unemployed may be mentioned here, but their value has been gravely questioned. One is the Rhode Island Census of unemployed persons in March 1908, and the other two are the

Federal Census reports for 1890 and 1900. The 1890 Census report may be rejected entirely, while the 1900 report was issued with careful warning as to its reliability. Since the statistics include children over 10 years of age who attended school during the year, as well as other individuals who voluntarily were only occasional workers, it is obvious that the two Federal Census reports, even if entirely reliable as to accuracy, do not touch the real problem. The results of the Rhode Island Census and of the 1900 Federal Census are summarized below:

The Census report on unemployment showed that of 5,772,641 males 10 years of age and over engaged in manufacturing and mechanical pursuits, 1,631,057, or 28.3 per cent., were unemployed at some time during the year, and that of 1,312,668 females 10 years of age and over in the same class of occupation, 294,346, or 22.4 per cent., were unemployed. Thus, nearly 2,000,000 workers, or 27.2 per cent., of the total engaged in manufacturing and mechanical pursuits, were out of work in 1900. Taking both sexes in all occupations—agricultural, professional, domestic, and personal, trade and transportation, manufacturing and mechanical—the formidable total of 6,468,974 persons were out of work at some time during the year. These constituted 22.3 per cent. of the total number engaged in these classes of occupations. (See Twelfth Census, 1900; Occupations, p. ccxxviii.)

The Rhode Island Census of unemployed persons in 1908 has been seriously questioned as to accuracy. Moreover, it was made during March of that year, a period of abnormal industrial activity. The Census showed that there were 18,292 unemployed persons among those habitually at work, while replies from manufacturers in the state indicated that there were 19,121 fewer persons employed on February 28, 1908, than on February 28, 1907. Unfortunately, the only statistics of the total number of wage-earners were those afforded by the Federal Census of 1905, which were obviously useless for purposes of comparison. (See Twenty-second Report of Industrial Statistics, Rhode Island, 1908.)

IV

CONDITIONS CAUSING IRREGULAR EMPLOYMENT

NEARLY all discussions of unemployment have regarded it as peculiarly a problem of industry and have accordingly emphasized those causes of loss in working time which lie in industrial organization and method. Without minimizing the relative significance of industrial and social causes, it is perhaps equally important to look at the problem from the viewpoint of the worker. To introduce our consideration of the causes of loss in working time by the wage-earner, let us ask: First, what are the causes of unemployment and lost time as the worker sees them? Second, what is the relative importance of these causes in the worker's actual experience?

Several of the investigations, the results of which have already been referred to, afford data on the points suggested by these questions. It must be borne in mind that they are by no means exactly accurate statistically; they do, however, suggest some considerations whose importance has not been adequately recognized in treating the unemployment problem.

Perhaps the most comprehensive data available for answers to the two questions are furnished in the statistics of wage-earners' families secured by the Federal

Bureau of Labor's Cost of Living investigation in 1901. Of the 24,402 families for which unemployment data were obtained, it was found that the heads of 12,154 families were idle for some period during the year, which averaged 9.43 weeks. The causes of the idleness of these 12,154 heads of families were investigated and the following statistics secured showing the principal causes, the per cent. of heads of families idle for each cause, and the average "weeks idle" in each case. These causes together accounted for 93 per cent. of all cases of idleness.

PER CENT. OF HEADS OF 12,154 FAMILIES OF WORKINGMEN IDLE IN 1901, BY PRINCIPAL CAUSES[1]

Causes of Idleness	Per cent. idle based on heads of families idle	Average weeks idle
Accident	1.66	8.98
Bad weather	2.25	9.32
Establishment closed	4.30	8.58
Sickness	22.54	7.71
Sickness and establishment closed	.95	11.91
Sickness and slack work	1.67	10.33
Sickness and vacation	1.11	5.32
Sickness and unable to get work	3.70	14.15
Slack work	13.05	9.79
Strike	2.07	9.65
Unable to get work	33.29	10.90
Vacation	6.45	2.61

Causes of unemployment among women workers in Indiana department stores and garment factories were ascertained by the Federal Bureau of Labor Statistics, in cooperation with the Federal Commission on Industrial Relations and the Indiana Commission on Working

[1] From Eighteenth Annual Report of the United States Commissioner of Labor, 1902, p. 45.

Women. Statements of reasons for unemployment were obtained from 493 women workers in department stores and 453 women workers in garment factories who lost working time in six principal cities and towns. These statistics are not regarded as exact, but are believed to be sufficiently accurate to indicate "tendencies." They are summarized in the following tables:

CAUSES OF UNEMPLOYMENT AND THEIR RELATIVE IMPORTANCE AMONG 493 WOMEN WORKERS IN INDIANA DEPARTMENT STORES RESPECTING UNEMPLOYMENT [2]

Causes	Per cent. of women reporting unemployment	Per cent. of time idle
For causes connected with the industry:		
Lay off	4.1	4.4
Other reasons	0.8	1.8
For personal causes:		
Voluntary vacation	71.0	16.6
Illness	29.2	17.9
Other reasons	51.3	58.6

CAUSES OF UNEMPLOYMENT AND THEIR RELATIVE IMPORTANCE AMONG 453 WOMEN WORKERS IN INDIANA GARMENT FACTORIES REPORTING UNEMPLOYMENT [3]

Causes	Per cent. of women reporting unemployment	Per cent. of time idle
For causes connected with the industry:		
Lay off	39.7	16.6
Lay off because of floods	12.1	1.3
Other causes	3.5	7.4
For personal causes:		
Voluntary vacation	40.2	10.9
Illness	52.8	45.1
Other reasons	29.8	16.9

[2] Bulletin No. 160, Bureau of Labor Statistics, 1914; Hours, Earnings, and Conditions of Labor of Women in Indiana Mercantile Establishments and Garment Factories, p. 52.

[3] *Ibid., p.* 88. The explanation of the terms employed in the classification of causes of unemployment in the above tables, as given by the Bureau of Labor Statistics, is that the term "other causes" connected with the industry, included strikes, vacations taken in order to avoid the stigma of being laid off, and blacklisting, and that "other personal reasons" include "illness in the worker's family, conditions or responsibilities which demanded her presence at home

Of the fifteen hundred comparatively steady employed women in confectionery, paper box and shirt factories and in retail stores in the state of New York, who were interviewed by agents of the New York State Factory Investigating Commission in 1913-1914, 1,000 had lost on an average one month during the preceding year. Dr. H. B. Woolston, director of the investigation for the Commission, comments as follows:

"Two or three weeks were usually accounted for by slack work or no jobs; one or two weeks were due to illness or family troubles. Holidays and vacations are a cause of loss to many factory hands, because many are not paid for time off, and for piece-workers days out are always a sacrifice. In stores, the majority of employees have a week or two off in the summer, with half or full pay. But in some places a partial shutdown is an excuse for obligatory vacations."[4]

The foregoing statistics picture the causes of unemployment from the point of view of the worker for a year's time. The question suggests itself, is the relative importance of the causes named constant in all years, or does it vary from year to year?

Unfortunately, there is no way of studying the same individuals from whom the above data were obtained for a series of years. There are, however, some statistics of causes of unemployment for a series of years

idleness through choice, etc." "Voluntary vacation" included "only such time as was voluntarily taken by the worker for rest and recreation."

"The line of demarcation," says the Bulletin, "has necessarily been rather difficult to draw, but the classification has been followed as closely as possible." (p. 53.)

[4] *The Survey*, xxxiii, p. 508, February 6, 1915.

which indicate tendencies to corroborate conclusions that are afforded from other data. The following tabulation contains statistics furnished by secretaries of representative labor unions in Massachusetts, which, while

REPRESENTATIVE MASSACHUSETTS UNIONS—PERCENTAGE UNEMPLOYED 1908-1914, BY CAUSES [5]

Quarters Ending	All Causes	Lack of Work or Material	Unfavorable Weather	Strikes or Lockouts	Disability	Other Causes *a*
March 31, 1908	17.9	16.2	0.2	0.7	0.7	0.1
June 30, 1908	14.4	12.5	0.1	0.3	1.2	0.3
September 30, 1908	10.6	8.7	0.0 *b*	0.5	1.2	0.2
December 31, 1908	13.9	11.0	0.5	0.7	1.2	0.5
March 31, 1909	11.4	9.5	0.1	0.2	1.3	0.3
June 30, 1909	6.4	4.6	0.0 *b*	0.3	1.2	0.3
September, 30, 1909	4.8	3.4	0.1	0.1	1.1	0.1
December, 31, 1909	9.4	4.9	2.4	0.1	1.2	0.8
March 31, 1910	7.1	5.3	0.1	0.1	1.4	0.2
June 30, 1910	7.0	5.4	0.0 *b*	0.1	1.2	0.3
September 30, 1910	5.6	4.0	0.1	0.1	1.3	0.1
December 31, 1910	10.2	7.3	1.2	0.1	1.2	0.4
March 31, 1911	10.4	7.5	0.7	0.1	1.4	0.7
June 30, 1911	6.6	4.2	0.2	0.5	1.2	0.5
September 30, 1911	5.6	3.7	0.2	0.3	1.2	0.2
December 30,*c* 1911	9.7	6.0	1.6	0.1	1.3	0.7
March 30, *c* 1912	14.1	5.1	1.0	6.3	1.3	0.4
June 29, *c* 1912	5.3	3.4	0.0 *b*	0.4	1.3	0.2
September, 30, 1912	4.7	3.0	0.1	0.3	1.2	0.1
December 31, 1912	9.1	6.4	0.6	0.6	1.2	0.3
March 31, 1913	11.3	7.3	0.5	1.6	1.4	0.5
June 30, 1913	6.4	4.3	0.1	0.7	1.2	0.1
September 30, 1913	6.8	4.3	0.5	0.6	1.2	0.2
December 31, 1913	10.4	7.3	0.7	0.5	1.4	0.5
March 31, 1914	12.9	9.2	0.7	0.6	1.6	0.8
June 30, 1914	9.9	6.9	0.3	0.7	1.2	0.8
September 30, 1914	11.0	8.5	0.2	0.5	1.5	0.3
December 31, 1914	18.3	14.9	1.1	0.1	1.5	0.7

a Including vacations, temporary shut-downs for repairs, stock-taking, etc.

b Less than 0.05 per cent.

c Owing to the fact that the respective dates—December 31, 1911, March 31, 1912, and June 30, 1912—fell on Sunday, the date chosen for the returns in each case was the day preceding.

[5] Report on the Statistics of Labor, Massachusetts, 1915, Part ix, p. 39.

not absolutely exact, are accurate enough to point unmistakably to certain facts.

The following tendencies appear to be indicated by the above statistics:

(1) Disability of the worker is a fairly constant cause of unemployment from season to season and from year to year.

(2) Weather conditions as a cause of unemployment vary in intensity chiefly according to season, becoming an important factor in winter.

(3) Labor disputes, as shown by the New York figures, appear to be a more prolific cause of unemployment in periods of low unemployment.

(4) Lack of work as a cause varies in intensity according to season and according to year, following the seasonal and cyclical fluctuations in industrial activity.

(5) Taking all occupations and industries together, of the two most important causes of unemployment, from the worker's standpoint, disability (chiefly due to sickness), and lack of work, the former is a fairly constant factor while the latter is a very variable factor.[6] The general term, "lack of work," covers all conditions governing the opportunity to be employed.

Analysis of the Causes of Loss in Working Time or Unemployment

The causes of loss in working time by wage-earners, as suggested in the foregoing statistics—accident, clos-

[6] Some of these tendencies are noted in the comment upon similar statistics by Frank B. Sargent, U. S. Bureau of Labor Bulletin, 109, Statistics of Unemployment and the Work of Employment Offices, 1912.

ing down of plants, sickness, slack work, vacations, strikes, bad weather and the like—have been variously classified by writers and in reports on unemployment according to the point of view from which the problem has been investigated and discust.

Taking into consideration all the factors that have been treated in the various analyses, and looking at the problem of unemployment from the standpoint of loss in working time as a condition of labor, there appear to be three general groups of causes:

(1) Evolutionary changes in industry and in social habits and movements which affect the character and the extent of the demand for labor, as well as the character and the quality of the labor supply.

(2) Conditions, methods and character of industry which affect the steadiness of the demand for labor.

(3) Conditions determining the worker's ability to grasp or retain the opportunity to be employed that industry offers.

It must be apparent that the distinction between "industrial" and "personal" causes, which some analyses have attempted, is misleading. It is impossible to say that there is any one group of causes—or any single principal cause, for that matter—which affects only the employer or only the employee. Both are affected by all three of the fundamental causes named above. The employer is governed by social conventions, by climatic conditions, by methods peculiar to his line of manufacturing, and by the efficiency of the worker, in the amount and kind of employment he offers. A worker's

efficiency or ability to hold his job when other workers are being laid off is affected by the nature and regularity of his employment and of his work no less than by the efficacy of his income to meet the necessity for healthful conditions of living, or by the character of other elements in his mental and physical environment. It is hard to fix the responsibility.

The main fact which every careful analysis of the causes of unemployment has shown is this: That there are certain conditions, whether they lie in industry, in the worker, or in society, which necessitate the idleness of a large number of individuals whose welfare depends on their opportunity to sell their labor, and that there are certain conditions, not necessarily different in identity, which determine the worker's ability to be among those who are steadily employed. The two questions most pertinent here are these: (1) How does the worker lose working time? (2) In what way or ways does he lose the most time?

With this point of view the principal facts may be summarized briefly.

Evolutionary Changes Affecting Employment

These changes may be grouped in two classes: (1) Changes in industry and in industrial organization and location which affect the character of the demand for labor; (2) changes in the quantity and the character of the supply of labor. These two groups of causes of unemployment are evolutionary. They are

peculiarly social forces which operate outside of the field of immediate control of either the employer or the employee and to which both employers and employees must adjust themselves in the best way they may. Yet it is a familiar fact that in this unceasing process of adjustment the employers are in a more advantageous position than the workers who, regardless of their merits, to quote John Stuart Mill, are "sac- [illegible] the gains of their fellow citizens and of be thr [illegible]

[illegible] *es in Industrial Structure and Methods.*— [illegible] the excellent summary from Mr. W. H. [illegible]'s "Unemployment," "Changes in industrial [illegible] are constantly recurring and constantly throwing men out of employment. The very life and growth of industry consist in the replacement of old machines by new; of established processes by better ones; of labor in one form and combination by labor in fresh forms or fresh combinations. The demand for labor is thus in a state of flux and reconstruction both as to quality and as to quantity. Men who for years have satisfied the demand in one form may find the form suddenly changed; their niche in industry broken up; their hard won skill superfluous in a new world; themselves also superfluous unless they will and can learn fresh arts and find the way into familiar occupations. They are displaced by economic forces entirely beyond their control and taking little or no account of personal merits." [7]

It has been objected that such changes are in them-

[7] Page 111.

selves not causes of unemployment, because for the most part they are so gradual as to permit the worker to adjust himself, and because his failure to adjust himself is really the cause of unemployment.[8] Reasoning of this sort seems rather specious in the face of the facts. Unemployment, at least from the worker's point of view is essentially the problem of the worker's economic security. Anything that disturbs his security may become a cause of unemployment and loss in working time. Granting for the moment that changes in industrial structure and methods are so gradual as to permit the worker to adjust himself to changed conditions, it may pertinently be asked: Is the average worker in a position to foresee changes in the demand in time to make them, or, if he has the foresight, is he financially able to prepare himself for a new occupation, to move to a new place, and to adjust himself to new conditions of work and living? Furthermore, changes in demand, unless the worker is able to foresee them and prepare for them, do not come gradually. They are gradual when viewed from the historian's point of view, but to the worker they are frequently as sudden as a stroke of paralysis. Compared with other causes of actual loss of working time and unemployment, however, changes in industrial structure and methods are unimportant. The actual percentage of unemployed persons for any period of time who are out of work for these reasons would probably be almost infinitesimal, if we had statistical data for comparisons. At the same

[8] *Ibid.*, p. 114.

time, the effects of such causes upon the worker's earnings and his economic security are probably much more serious than the actual loss in working time occasioned, if the emphasis placed by labor unions on the effects of new machinery and of new processes can be taken as a true indication of the worker's point of view.

In order to illustrate, as clearly as available data will allow, the character of the causes of unemployment that exist in changes in industrial structure and methods, the following specific changes may be noted:

a. Changes in demand for labor according to industry.

b. Changes in demand for labor according to locality.

c. Changes in demand for labor due to the introduction of machinery and new processes.

d. Changes in organization of industry.

a. Changes in Demand for Labor According to Industry.—The unequal rate of development among different industries is in itself a contributory factor in unemployment, since it means that the demand for labor varies in intensity both as to location and as to the kind of labor demanded. The potency of this factor is difficult of measurement. Changes in demand due to it are not so gradual as might be assumed, for within a single decade—even within a period of five years—they occur with pronounced intensity. The following statistics showing the increase and decrease in the average number of wage-earners for certain industries will indicate something of the rapidity of such changes:

INCREASE IN NUMBER OF WAGE-EARNERS, 1899-1909, IN ALL INDUSTRIES AND IN 9 LARGEST INDUSTRIES[9]

Industry	Average number of wage-earners 1909	Per cent. of increase 1899-1909	1904-1909	1899-1904
All industries	6,615,046	40.4	21.0	16.0
Slaughtering and meat-packing	89,728	29.5	19.0	8.9
Foundry and machine shop products	531,011	...	19.8	...
Lumber and timber products	695,019	36.6	30.5	4.7
Iron and steel, steel works and rolling mills	240,076	31.0	15.7	13.3
Flour and grist mill products	39,453	22.4	0.9	21.4
Printing and publishing	258,434	32.4	18.0	12.2
Cotton goods	378,880	25.1	19.9	4.3
Clothing, men's	239,696	52.1	38.0	10.2
Boots and shoes	198,297	31.1	23.7	6.0

DECREASE IN NUMBER OF WAGE-EARNERS, 1899-1909, IN CERTAIN INDUSTRIES[10]

Industry	Average number of wage-earners 1909	Per cent. of decrease 1899-1909	1904-1909	1899-1904
Iron and steel, blast furnaces	38,429	2.1	*a* 9.6	10.6
Smelting and refining, lead	7,424	10.8	2.0	9.0
Carriages, wagons	69,928	5.3	10.2	*a* 5.5
Ship and boat building	40.506	13.4	20.2	*a* 8.6
Roofing materials	2,465	67.5	72.0	*a* 16.1
Bicycles and motorcycles	4,437	74.7	*a* 33.7	81.1

a Increase.

b. Changes in Demand for Labor According to Locality.—The unusual growth or decline of certain industries in specific sections or localities has its effect in increasing unemployment. To meet these changes the worker must be able to shift his home and to adjust himself to new conditions in his occupation, or else have a smaller chance of being employed.

The Thirteenth Census showed that, in the five-year period 1899-1904, the number of wage-earners decreased, for example, in localities as follows:

[9] Compiled from Thirteenth Census, Vol. viii, p. 40.

[10] Compiled from Thirteenth Census, Vol. viii, pp. 40-42.

Locality	Per cent. of decrease in average number of wage-earners, 1899-1904
Hammond, Indiana	42.3
Portsmouth, New Hampshire	51.8
Fall River, Massachusetts	12.4
Cohoes, New York	16.5
Knoxville, Tennessee	28.6
Augusta, Georgia	13.0

In the five-year period 1905-1909, the following localities, for example, showed decreases:

Locality	Per cent. of decrease in average number of wage-earners, 1905-1909
Mobile, Alabama	5.0
New London, Connecticut	12.9
Lowell, Massachusetts	*a*18.7

a Women wage-earners only.

During the last Census decade, a number of localities exhibited decreases in the average number of wage-earners employed in manufacturing industries, among which may be named the following:

Locality	Per cent. of decrease in number of wage-earners, 1899-1909
Troy, New York	12.7
Jacksonville, Florida	25.0
Pittsburgh, Pennsylvania	*a*7.4
Homestead, Pennsylvania	*a*44.3
Pensacola, Florida	20.3
Savannah, Georgia	15.6
Alton, Illinois	20.9
Cairo, Illinois	13.8
Quincy, Illinois	12.4
Baton Rouge, Louisiana	42.4
Cumberland, Maryland	14.9
Hagerstown, Maryland	22.3
Charleston, South Carolina	16.7
Knoxville, Tennessee	7.5

a Men wage-earners only.

While in some of these instances the decreases in number of wage-earners may be more apparent than real, because of changes in city boundaries or a local industrial depression occurring in 1909, they are at least sufficient to suggest the familiar decline in industrial activity and the demand for labor that occurs in localities for various reasons.

PER CENT. OF INCREASE IN AVERAGE NUMBER OF WAGE-EARNERS, 1899-1909, IN CERTAIN CITIES

City	Male	Female
New York	39.2	53.1
Chicago	30.5	54.7
Philadelphia	15.6	28.6
St. Louis	34.6	40.8
Cleveland	49.1	67.3
Detroit	129.1	64.8
Baltimore	7.9	5.5
Boston	20.4	49.8
Cincinnati	9.4	7.8
Newark	37.5	46.9
Milwaukee	47.9	54.3
Buffalo	49.9	54.2
Providence	21.4	24.2
Rochester	46.0	35.5
Fall River	29.1	14.3
Paterson	4.7	32.6
Indianapolis	49.4	57.0
Lawrence	48.5	37.8

On the other hand, the demand for labor in certain localities shows varying degrees of increase in the same Census period. The fact that the increase in demand is, in itself, not uniform is an evidence of the instability of demand so far as locality is concerned. The effect is to pull the worker in directions that change over a period of time much shorter than the natural duration of a wage-earner's working life. Contrasted with

the foregoing statistics of decrease in wage-earners in certain localities and indicating the concentration of the demand for labor during the ten years from 1899 to 1909, the percentages of increase in the average number of wage-earners in certain centers are interesting. The extraordinary increase in the number of women wage-earners in the majority of the cities named above is especially significant. It may also be noted that those localities showing increases in wage-earners are larger centers, with a few exceptions, than those localities exhibiting decreases.

c. Changes in Demand for Labor Due to the Introduction of Machinery and New Processes.—Whatever may be the opinion of students of industrial evolution as to the ultimate effects upon labor of the introduction of new mechanical methods and processes, there is practical unanimity as to the changes in demand for labor—both in quantity and in character of labor—as a temporary effect. In practically all instances where machinery has been introduced, either some amount of labor has been rendered unnecessary or a different kind of labor has been needed. In the majority of instances both changes have occurred.

This is a fact of industry so familiar that an array of corroborative data is not needed here. It is pertinent only to emphasize its significance as a factor causing unemployment and loss of working time, temporary tho it may be. One of the main grounds of the trade union's position with regard to the question of machinery and new processes, is that some workers not

only have their pay reduced because less skilled work is required, but many lose their jobs entirely. Displacement of labor thus often means unemployment until the displaced worker is able to find the same kind of work in a decaying occupation, or is able to adjust himself to the change in demand for labor and to other kinds of work, frequently in another locality.

While there are many instances of at least temporary displacement as an effect of the introduction of new processes and machinery and of calculations as to the number of workers that a specific machine or process actually displaces, there are no statistics to indicate the loss of working time or the extent of unemployment thus brought about. Some idea of the importance of this factor as a cause of unemployment may be suggested by a comparison of the ratio of increase or decrease in the number of wage-earners in an industry with the ratio of increase in mechanical power employed in the last Census decade. A few instances are sufficient, thus:

Industry	Per cent. of decrease in average number of wage-earners	Per cent. of increase in horse-power per wage-earner
Agricultural implements	8.5	25.0
Cars and street railroad	0.1	33.0
Iron and steel, blast furnaces	2.1	42.2
Petroleum refining *a*	16.9	41.5
Smelting and refining lead	10.8	52.7

a For the five years, 1904-1909.

"In the five years between the manufacturing censuses of 1900 and 1905," as the report of the committee on unemployment of the New York Commission

on Employers' Liability and Unemployment remarks, "out of 61 leading industries in the state of New York, nine suffered actual decreases in the number of their employees which might be traced to the introduction of machinery. The decreases in the number of wage-earners are accompanied by an increase in the value of machinery, tools, and equipment employed." [11]

The following table for New York State, compiled from general census statistics, is typical of what may be found to occur to a greater or less extent in other States and even in localities:

Industry	Per cent. of decrease in average number of wage-earners	Per cent. of increase in value of machinery, tools and equipment
Men's furnishing goods	23.0	17.0
Leather gloves and mittens	43.0	17.0
Leather, tanned, curried and finished	16.0	46.0
Newspapers and periodicals	1.5	4.0
Lithographing and engraving	2.7	2.0
Worsted goods	*a*	61.0
Cotton goods	5.0	24.0

a Practically no change.

The change in the character of the demand due to the introduction of new machinery and processes is not indicated in statistics such as the above, but that it is a factor in causing unemployment through the displacement of labor can not be doubted. For, while the total number of workers in an industry may not be decreased, or may even be increased, by changes in process, a considerable number may be thrown out of employment because their occupations are eliminated.

[11] Third Report, 1911, p. 44.

It may be true that these workers have the opportunity to be employed at the same plants in new or different occupations, but it is also true that a skilled worker, especially an artizan in hand occupations, will naturally try to secure work to which he has become accustomed and in which he has been trained elsewhere, rather than to go into new work at wages that usually are considerably lower than what he has been earning. Certainly his economic security has been endangered, or even weakened, and frequently actual unemployment occurs.

Instances of this change in the kind of labor required are numerous in the history of American industry. In cotton spinning the tendency has been to increase the number of ring spindles at the expense of mule spinning. The former method allows the use of cheap, unskilled foreign labor. The linotype machine requires men of probably the same skill and intelligence as hand setting, altho along different lines, but it has cut down the number of workers required, even faster than the printing industry could develop. The new Huhn coal-mining machine will do as much work as 20 hand-pick miners and at half the cost. Lifting magnets, pneumatic hoists and traveling cranes render unnecessary, not highly skilled labor, but the most unskilled. The old type of hand shoemaker is fast disappearing before the advances made by the Goodyear, McKay and other machines. The field of the hand-worker is constantly being narrowed by inventions which come closer and closer to the reproduction of the hand-made product.

d. Changes in Organization of Industry.—The concentration of industries in certain localities, the introduction of machinery and new processes, the closing up of or failure of occasional plants, and the "decay" of certain trades and rise of new occupations, are, of course, directly traceable in a large degree to changes in the organization of industry. These changes, it is well recognized, are principally the changes brought about by the growth of corporate ownership and the decline of private operation of manufacturing establishments. It is only necessary, for the sake of completeness, to refer to changes of this character that have taken place in the last Census decade in order to bring to mind their extent even in so short a period:

PER CENT. OF ESTABLISHMENTS UNDER CORPORATE OWNERSHIP IN ALL INDUSTRIES AND IN SOME OF THE PRINCIPAL INDUSTRIES, 1899 AND 1909, COMPARED [12]

Industry	Per cent. operated by corporations	
	1909	1899
All industries	25.9	17.9
Slaughtering and meat-packing	29.7	20.9
Foundry and machine shop products	48.4	*a* 32.8
Lumber and timber products	17.1	11.4
Iron and steel, steel works and rolling mills	95.1	87.7
Iron and steel, blast furnaces	93.8	
Flour and grist mill products	19.4	15.0
Printing and publishing	22.8	14.9
Cotton goods	84.1	69.8
Clothing, men's	13.0	5.4
Boots and shoes	38.3	20.2
Woolen and worsteds	58.7	32.9
Hosiery and knit goods	47.4	31.1
Clothing, women's	12.8	4.8

a Includes "locomotives not made by railroad companies," and stoves and furnaces. The correct percentage for 1899 would probably be lower.

[12] Thirteenth Census, Vol. viii, pp. 137-138.

But, as the report of the New York Commission on Unemployment, to which reference has already been made, points out, there are other changes in organization which even more directly have resulted in unemployment. "Even without changing the ownership of establishments," says this report, "reorganization of methods for economizing in the cost of production are constantly being introduced, and the effect invariably is to displace some workers. The industrial engineers who recently described to the Interstate Commerce Commission the economies they had introduced in manufacturing establishments testified that the number of wage-earners necessary to carry on the work had been reduced by their system or else more work was accomplished with the same number. . . . That reorganizations and business economies are a constant source of unemployment can not be doubted. Reports from five employment offices throughout the country state that there is an oversupply of clerks, bookkeepers and general mercantile help. These are the workers who are mostly displaced by organization and economy in business methods." [13]

2. *Changes in the Quantity and Character of the Labor Supply.*—How far social changes that affect the character of the labor supply, or determine the quantity, are related to the problem of unemployment, loss of working time, and the economic security of the worker, can not be measured. That they do have effects in unemployment can not be denied. Social standards

[13] *Supra cit.*, pp. 46-47.

Occidental College Library.

and movements undoubtedly play a part in determining the physical and mental efficiency of the worker, to say nothing of his moral qualities. The state of national or even local opinion on the liquor question is a factor, just as is the growth of the public health movement, or the recognition of a better correlation of education and every-day life. But these factors are not capable of statistical statement for a community or the nation as a whole, altho their influence in the life of the individual worker can not be doubted. We know that they are causes of loss of working time and of uncertainty in employment sufficiently potent to warrant the expenditure of a great deal more energy in the work of amelioration and reform than is now being expended.

To some extent changes in the quantity and character of the labor supply are brought about by the demand of industry for labor. Whether these changes are due more to demand, or more to social forces, is impossible of statement. Apparently the increased proportion of unskilled, untrained workers is due to a change in the demand for workers, but it is also agreed that the influx of large numbers of immigrants into industry has made possible the expansion and evolution of industry that have resulted in the altered character of the demand. It is possible that a revolution in social beliefs has had a great deal to do with the entrance of women into industry; on the other hand, it is undeniable that certain industries, employing women almost exclusively at wages below the minimum of subsistence, have developed because of the opportunity afforded for parasit-

ism. To what extent the entrance of women into industrial occupations has actually caused displacement of male workers is yet a matter of profitless speculation. That it has had an effect in determining the quality as well as the quantity of the labor supply, and possibly has reacted upon the character of the demand for labor, must be conceded. Until further data are accumulated, the quantitative analysis of the situation is impossible.

More definite, from the standpoint of statistical statement, is the relation of the immigration movement to the supply of labor. "Their (the immigrants') numbers are so great and the influx is so continuous," said the Federal Immigration Commission in its conclusions, "that even with the remarkable expansion of industry during the last few years, there has been created an oversupply of unskilled labor, and in some of the industries this is reflected in a curtailed number of working days and a consequent yearly income among the unskilled workers which is very much less than is indicated by the daily wage rates paid."[14] The New York Commission on Employers' Liability and Unemployment stated in its conclusions that "the large and continuous additions to the laboring population of the state due to immigration are among the most important single causes of unemployment," and, that "immigration no doubt accounts in part for the chronic oversupply of labor revealed by the statistical evidence we have presented."[15] This report took pains to point out that

[14] Reports of the Immigration Commission, Vol. i, p. 39.
[15] Third Report, 1911, pp. 7-8.

during the ten years ending June 30, 1910, some 1,041,570 immigrants came to the United States. Of these three-fourths entered at the port of New York, and one-third of those entering at New York gave the state of New York as their ultimate destination.

The extensive investigations of the Federal Immigration Commission into the manufacturing and mining industries of the country led it to conclude that there was no basic industry in which unskilled immigrant laborers from southern and eastern Europe were not largely represented, in many cases constituting more than 50 per cent. of the total number of persons employed in such industries. "Coincident with the advent of these millions of unskilled laborers," said the Commission, "there has been an unprecedented expansion of the industries in which they have been employed. Whether this great immigration movement was caused by the industrial development, or whether the fact that a practically unlimited and available supply of cheap labor existed in Europe was taken advantage of for the purpose of expanding the industries, can not well be demonstrated." [16] Whatever the cause, the fact seems to be thoroughly established that unrestricted and unguided immigration have caused unemployment, both in the form of loss of working time and of economic insecurity, among the workers in the industries into which the unskilled immigrants have come in large numbers.

It is proper to note here an important qualifying con-

[16] *Supra cit.*, p. 37.

dition. The problem of unemployment, so far as it is a result of cyclical depressions, is mitigated by the fluidity of the newer immigrant labor supply. A factor of no mean proportions is thus provided for assisting the natural tendency toward an equilibrium of the supply and demand of labor. The reports of the Commissioner-General of Immigration indicate wide yearly fluctuations in immigration which correspond so closely to the well-known periods of industrial activity and depression that they are often included in business barometrics. The following statistics show the number of immigrants admitted each year since 1890:[17]

Period Year ending June 30th	Number	Period Year ending June 30th	Number
1890	455,302	1903	857,046
1891	560,319	1904	812,870
1892	579,663	1905	1,026,499
1893	439,730	1906	1,100,735
1894	285,631	1907	1,285,349
1895	258,536	1908	782,870
1896	343,267	1909	751,786
1897	230,832	1910	1,041,570
1898	229,299	1911	878,587
1899	311,715	1912	838,172
1900	448,572	1913	1,387,318
1901	487,918	1914	688,495
1902	648,743	1915	256,678

The investigations of the Federal Immigration Commission and the reports of the Commissioner-General of Immigration conclusively show that a very large proportion of newer immigrants are merely transient

[17] Report of the Commissioner-General of Immigration for the fiscal year ending June 30, 1915.

dwellers who come to this country to acquire a competence and then return to their home countries. When employment is not available, they do not come; when employment ceases, they flock back to Europe. The European emigration into the United States in the extremely active year of 1907 showed 23 per cent. of the old immigration and 77 per cent. of the new, whereas the difference between the immigrants of these two classes leaving the United States in the inactive year of 1908 was still more pronounced, those of the old immigration numbering less than 9 per cent., while the new formed over 90 per cent.[18]

The fluidity of the new immigrant labor supply is illustrated by statistics obtained in a study of Johnstown, Pa., a typical iron and steel manufacturing community, for 1907 and 1908. The foreign-born population in 1907 was approximately 27,000. In the year following, when the depression manifested itself locally by a 50 per cent. curtailment of work in the iron and steel plants, the foreign-born population dropt to approximately 16,000, or 40 per cent. It is significant to note that the migration was confined almost entirely to workers of the Croatian, Hungarian, Hebrew, Italian, Magyar, Polish, Servian and Slovak races, while no diminution in the number of English, German, Irish, Scotch and Welsh workers was noted. Only about two-thirds of the employees for whom data showing irregularity of employment were obtained, were found to have worked six months or more of the year

[18] Jenks and Lauck, "The Immigration Problem" (Third Edition), p. 36.

beginning with the summer of 1907, and less than one-fourth worked steadily throughout the year.

In another sense, the fluidity of the newer immigrant supply mitigates the problem of unemployment. This supply, composed largely of males without families, tends to go to localities where the demand for unskilled labor is greatest, so far as existing methods of distributing the supply and the immigrant's own knowledge of the demand permit. Altho lack of adequate machinery for the artificial distribution of immigrants has resulted in the congestion of the newer immigrant labor supply in certain sections of the country and in certain manufacturing and mining industries, the ease with which it adjusts itself to changes in the demand for labor is frequently marked. For example, in the suspensions of work in the anthracite field in 1906 and 1912 incident to the making of new agreements between operators and miners, it was observed that the possible extent of the idleness occasioned was in both instances greatly lessened by the emigration of numbers of newer immigrant miners and their migration to other localities in the bituminous and steel manufacturing sections.[18a]

Variations in the Demand for Labor Due to Fluctuations and Irregularities in Industry

In addition to changes in industry and industrial organization which affect the character of the demand

[18a] Sydenstricker, Edgar: *Collective Bargaining in the Anthracite Industry*, (U. S. Bureau of Labor Statistics, Bulletin 191, March, 1916), pp. 52, 54.

for labor, there are certain variations in the demand for labor that are due to the conduct of industry. The former, as has been pointed out, are evolutionary changes; the latter are due to factors continually present, and result in a more or less constant curtailment of the wage-earner's opportunity to work regularly.

These variations may be classed under two heads:

1. Fluctuations.
2. Irregularities.

Fluctuations are changes in demand that have been found to occur and recur within periods of more or less fixt duration, and that are cyclical and seasonal. The irregularities, on the other hand, are due to peculiarities in industrial organization and methods of operation and management in certain industries. They manifest themselves in the sudden closing down of plants because of business failures that occur every year; the piling up of orders for speculation or other purposes; short time contract work; the practise of "hiring and firing" for each specific piece of operation; the maintaining of labor reserves in certain plants, etc.

Some of these variations are nation-wide; others are confined to certain industries; others occur in certain localities and plants, and still others appear to happen in localities and industries without any determinant capable of definite statement. Altogether they render the worker's economic status insecure from almost every angle. The fact that in some industries the uncertainty of constant employment is greater than in others because of methods peculiar to those industries

results in the concentration there of the less efficient, lower-paid workers, which, in turn, aggravates the local problem of unemployment. The recurring industrial depressions sweep still more workers into this class, causing a frequent and cruel readjustment of the labor market. The unexpected irregularities that come from sudden failures, or other unforecasted causes, render the opportunity for employment still more fickle. And to these should be added the thousands of individual cases of discharge that result from the completion of a contract by a plant, the decision or whim of an employer without regard to the effects upon the worker, and many contingencies arising under a competitive system of industry which force employers to use measures for saving immediate expense rather than adopt policies of sound economy.

A worker may be subject continually to the possible effects of all these fluctuations and irregularities; certainly he is at all times subject to some of them. The actual way in which each of them affects the opportunity of any single worker for constant employment is so complex that it is not possible to measure the relative force of it. It is pertinent, however, to gather from the great abundance of published material on various phases of the subject some instances of these fluctuations and irregularities, and to indicate, wherever the data are sufficient, the extent to which the worker's economic security is weakened by these causes.

Fluctuations: Cyclical.—Corresponding to the alternate expansion and contraction of industrial activity,

as shown by the familiar cyclical barometrics of business, is an alternate rise and fall of the average percentage of unemployment, as shown by statistics of unemployment. These alternations denote, of course, changes in the intensity of the demand for workers. Without entering into the causes of cyclical fluctuations in demand, it is important to note their extent as exprest in the form of lost working time and unemployment.

The most comprehensive and consistent statistics covering a series of years are afforded by data secured from trade unions and published by the New York State Department of Labor, and the Massachusetts Bureau of Statistics. Cyclical fluctuations in employment offered in coal mining are indicated by the familiar statistics of days idle. Other data are suggested by statistics showing the number of employees in a city or a state from year to year, as given by the New York Department of Labor; the total amount paid in wages, as given by the Massachusetts Bureau of Statistics; and the figures of applications for jobs as given by public employment offices.

These statistics indicate, for example, that 1904, 1908 and 1913 were periods of relatively great unemployment, occurring every four or five years. "We know that 1892 was a year of great depression in industry," remarks the report of the New York Commission's Committee on Unemployment,[19] "altho we have no

[19] Third Report of the New York Commission on Employer's Liability and Unemployment, 1911, p. 43.

statistics of unemployment for that year. Thus it appears we have two cyclical movements. The amount of idleness rises and falls and reaches very high proportions approximately every 15 years, and within the greater waves there are smaller fluctuations with dull years recurring every four or five years. It is noted that all sources of information show the same movement."

These cyclical fluctuations do not appear to be confined to any single group of industries; they appear in all. This fact is illustrated in the following table showing the monthly mean percentages of idleness in the state of New York by industries from 1908 to 1914, inclusive:

IDLENESS IN LABOR UNIONS IN THE STATE OF NEW YORK, 1908-1914, BY INDUSTRIES

Industry	1914	1913	1912	1911	1910	1909	1908
Building, stone, etc.	39.8	25.2	21.2	20.7	24.1	26.7	42.3
Transportation	13.5	9.4	7.5	19.9	14.0	23.8	31.0
Clothing and textiles	38.9	40.9	28.8	22.8	34.1	18.8	34.3
Metals, machinery, etc.	20.2	10.5	11.4	24.0	7.7	13.7	29.0
Printing, binding, etc.	10.4	7.1	5.7	5.2	5.0	9.4	18.7
Woodwork and furniture	32.4	21.7	17.8	19.4	10.5	13.3	33.2
Food and liquors	12.5	10.3	9.9	8.5	12.8	9.6	11.0
Tobacco	25.9	10.0	7.7	12.8	11.1	12.4	15.4
Res., trade, etc.	13.5	6.0	5.3	5.3	5.4	6.6	11.1
Stationary engine tending	3.0	2.1	1.9	1.8	1.4	1.6	3.1
Miscellaneous	24.4	9.5	7.1	13.1	14.5	14.4	22.0

Fluctuations: Seasonal.—It is a familiar fact that unemployment appears to be greater at certain seasons of the year than at others. Distress among unemployed persons seems to be the most acute during the winter months, altho in the great majority of manu-

facturing industries the maximum employment occurs in the winter. The apparent inconsistency is to be explained in part, perhaps, by the fact that shipping, agricultural and certain industries closely allied with agricultural industries, building and the like, have their periods of extreme activity in the summer months, and that, while basic manufacturing industries tend to absorb all of their ordinary available supply of labor in winter, a large number of workers in the other industries are idle at the very period of the year when the cost of living is at the highest and when actual suffering is most likely to occur. Furthermore, the tendency on the part of workers idle in winter to flock to the larger cities concentrates unemployment in these localities at that time of the year.

Just how many more workers are actually unemployed in one season of the year than at others can not be definitely estimated for the country as a whole. It can be determined for a locality, however, because the fluctuations in the demand for labor in local industries is a matter capable of more or less exact estimate. For monthly or seasonal fluctuations are according to industry rather than locality.

So much has been published on the seasonal phase of the unemployment problem that it is impossible to present here a summary of all of the available data. A conception of its importance as a cause in loss of working time, unemployment and the economic insecurity of workers in some of the larger industries will, it is believed, be afforded by typical illustrations:

VARIATION IN EMPLOYMENT IN CERTAIN PRINCIPAL INDUSTRIES, 1909

(Compiled from U. S. Census, 1910, Vol. viii)

Industry	Wage-earners employed		Per cent. minimum is of minimum month
	Maximum month	Minimum month	
Agricultural implements	Dec.	Aug.	81.0
Boots and shoes	Dec.	May	91.8
Canning and preserving	Sep.	Jan.	12.9
Clothing, men's	Dec.	Jan.	91.8
Clothing, women's	Oct.	July	80.6
Furniture	Nov.	Jan.	88.2
Cotton goods	Dec.	July	49.3
Glass	Dec.	Jan.	97.6
Iron and steel	Dec.	Mar.	75.8
Leather	Dec.	May	91.0
Printing	Dec.	July	93.3
Hosiery and knit goods	Nov.	Jan.	91.7
Silk	Mar.	July	95.8
Sugar refining	July	Jan.	79.7
Tobacco	Dec.	Jan.	91.6
Woolen and worsted	Nov.	Jan.	91.0
Fertilizers	Mar.	July	48.7

The 1910 Census exhibits wide differences for the principal manufacturing industries in the number of wage-earners employed in the different months of the year. In 1909 the greatest steadiness of employment was in the manufacture of cotton goods. Other large industries in which the month of least activity was more than 90 per cent. were boots and shoes, men's clothing, leather and leather goods, printing, hosiery and knit goods, silk, tobacco and woolen and worsted. The women's clothing, furniture, iron and steel and sugar refining industries show a relatively large degree of fluctuation in the number of employees. Of the larger industries, the greatest fluctuations are seen in glass and fertilizer manufacturing. The canning and

preserving industry is conspicuously a seasonal one, and, as the Census points out, if it were not for the fact that the canning and curing of fish and the canning of oysters are carried on to some extent in the winter months, the variation in the canning industry would appear to be even greater.

A better idea of the effect of seasonal fluctuations is gained from the replies received from 191 trade unions in the state of New York by the New York Commission on Employer's Liability and Unemployment.[20] According to these replies, the following trades had slack seasons of three months: Railroad and railway employees, plumbers and steam and gas-fitters, clothing and textile workers, carpenters and joiners, and miscellaneous building employees. Painters, decorators and paperhangers, cement workers, masons and bricklayers, woodworkers, tobacco workers, electrical workers, teamsters and drivers, molders and millwrights had slack seasons of from four to five months. The slack season for longshoremen and brewery employees was six months. Stone workers had no work at all for three months in the year and pavers and rammermen no work for six months. The same report stated that, in the building and stoneworking trades, which exhibit in a very marked manner the influence of weather conditions, fully one-third of the workers are thrown out of employment during slack seasons, the bricklayers and plasterers losing the most time. Fluctuation in the employment of transport workers is due to the closing

[20] Third Report, 1911, p. 162.

of the navigation season, as was brought out in the hearings of the Commission on Industrial Relations on the New York Dock Workers.

The glass and clay products industries exhibit distinctly seasonal fluctuations, the slack season coming during the summer. In New Jersey, for example, during 1912 the number of employees in 21 window glass and glass-bottle factories varied from between 6,000 and over 7,000 from October to June, reaching 1,874 in August.[21] In brick and terra-cotta, another important New Jersey industry, the maximum number of employees was about 9,000 from April to October, reaching a minimum in January and February of about 6,700.[22] The Massachusetts statistics for 1913 show that in the boot and shoe factories in that state the total number of employees was between 82,000 and 85,000 from November to March, dropping to 77,000 approximately in June and showing a somewhat dull season from April through October. In cotton goods the total number of employees was between 116,000 and 118,000 from October through April, the period from May to September constituting a dull period, the minimum being 109,000 in August.[23]

The character of the seasonal demand for the product as a cause of fluctuations in employment is illustrated by such industries as clothing (some branches of the industry more than others), confectionery, mil-

[21] Thirty-sixth Annual Report of New Jersey Bureau of Statistics of Labor and Industries, p. 56.

[22] *Ibid.*, p. 48.

[23] Twenty-eighth Annual Report of Bureau of Statistics on Statistics of Manufacture, 1914.

linery, paper boxes and the like. In the manufacture of paper boxes, for example, there is a busy season ranging from a few weeks to two or three months before Christmas and a shorter rush period before Easter. After the Christmas rush and through the summer come the dull times. This condition is specially pronounced in the manufacture of novelty or fancy boxes and hardly noticeable in the manufacture of staple boxes, such as shoe or cigaret boxes.[24]

The garment industries in New York are a familiar instance of seasonal fluctuation in employment. "There are about six months of activity," says a recent report on the dress and waist industry,[25] "four in the spring and two in the fall, half of them carried on under extreme, almost feverish, pressure, followed by an equal period of subnormal activity with almost complete stagnation for one month in the year." The two "high peaks" are found in March and October, while the lowest point is in July. It is important to note that the fluctuation in wages is greater than the fluctuation in number of employees. For example, in March, it was found that there were 20 per cent. more people employed than the average throughout the year, but wages in the same month rose to 37 per cent. above the average—a fact which is due to the longer working hours and increased wages during the rush season. Similarly, in the slack season employment drops to 60 per cent. of the average, while wages go down as low at 53 per cent. Sea-

[24] Bureau of Labor, Woman and Child Wage-Earners, Vol. xviii, pp. 244-245.

[25] Bureau of Labor Statistics, Bulletin, 146.

sonal fluctuation in the clothing industry has been observed everywhere where an investigation has been made. Rush seasons and overtime work in the clothing factories were noted by the Kentucky Commission to Investigate Conditions of Working Women,[27] as many as 50 per cent. of the workers being laid off during slack seasons lasting from three to six months, while the remainder work only "short days" or "short weeks" or both—a condition found to exist in New York City as well as in other localities. Testimony before the Commission on Industrial Relations showed that in Philadelphia the work seasons in the women's garment industry totaled seven or eight months, from August to November and from February to April. Similar testimony corroborated the conditions described above for New York City. The Federal Bureau of Labor Statistics investigation of women workers in Indiana garment factories, undertaken in cooperation with the Commission on Industrial Relations and the Indiana Commission on Working Women, showed that nearly 60 per cent. of the factories reported alternate periods of rush and slack seasons. In these factories nearly 50 per cent. of the women garment workers were employed. It was found that 94 per cent. of the 67 establishments investigated reported a normal season which averaged 37 weeks in length and affected 98.7 per cent. of the women, and that 56.6 per cent. of the establishments reported a dull season averaging 13½ weeks in duration, affecting 43.8 per cent. of the

[27] Report, 1911, p. 16.

women.[28] Considerable variation was shown according to the branch of the clothing industry, thus:

NORMAL, DULL AND BUSY SEASONS AS REPORTED FOR 67 GARMENT FACTORIES IN INDIANA, GROUPED ACCORDING TO GARMENTS MADE

Garments Manufactured	Per cent. of establishments reporting				
	Normal season only	Normal and dull seasons	Normal and busy seasons	Normal, dull and busy seasons	Busy and dull seasons
Working-men's clothes (including overalls, coats and work shirts)*a*	36.4	50.0	....	13.6	....
Cotton gloves	55.6	22.2	5.6	16.6	....
Men's custom-made suits and overcoats	....	16.7	....	50.0	33.3
Men's fine shirts and furnishings	55.6	22.2	....	22.2	....
Women's ready-made clothing	22.2	33.3	11.1	22.2	11.1
Women's custom-made clothing	66.7	....	....	....	33.3
Total	40.3	31.3	3.0	19.4	6.0

a One establishment also makes women's ready-made clothing.

In confectionery manufacture two slack seasons are shown—one in July and another at the end of December and in January—in which large numbers of employees are laid off,[29] this number reaching 25 per cent. after the Christmas season in New York candy factories.[30]

The retail season in the millinery business lasts from February until after Easter and from August until November, according to the New York Factory Inves-

[28] Bureau of Labor Statistics Bulletin No. 160, pp. 62-64.
[29] Massachusetts Minimum Wage Commission, Wages of Women in Candy Factories, 1914, pp. 36-37; Washington State Industrial Welfare Commission, 1914, p. 27.
[30] H. B. Woolston, *Survey*, February 6, 1915.

tigating Commission's data, thus allowing but six months' employment for large numbers of milliners divided among two seasons.[31]

In mercantile establishments—especially in department stores and five- and ten-cent stores—the seasonal fluctuation in employment is extremely great. The New York Factory Investigating Commission's returns from 18 large mercantile establishments in New York City indicated that, during the busy season before Christmas, 56,000 were employed and that during the summer months the number fell to 35,000, being a displacement of nearly 50 per cent. on the basis of the average number employed.[32] The testimony on department stores in New York City before the Commission on Industrial Relations furnished a number of instances of this seasonal irregularity of employment. Similar conditions have been described in several other reports. In cities in the State of Washington, "seasonal openings" and the Christmas season made necessary the employment of extra forces for a period ranging from three to six weeks, while in the slack winter season employees were given unpaid "vacations" two weeks to a month in length.[33] The Bureau of Labor Statistics investigation in Indiana cities, conducted in cooperation with the Commission on Industrial Relations and the Indiana Commission on Working Women, found "that 124, or 88.6 per cent., of the establishments reported a dull season averaging 15 1-6 weeks and affecting 86.7

[31], [32] H. B. Woolston, *Survey*, February 6, 1915.

[33] Washington State Industrial Welfare Commission, 1914, p. 78.

per cent. of the prevailing number of women employed." [34]

A marked variation in the duration of the dull season and in the number of women affected, according to locality, appeared thus:

DULL SEASONS IN SELLING DEPARTMENTS OF DEPARTMENT AND OTHER RETAIL STORES IN TEN INDIANA CITIES

Cities	Establishments reporting dull season		Women affected		Average duration in weeks
	Number	Per cent.	Number	Per cent.a	
Indianapolis	26	92.9	1,715	94.2	15 2-3
Terre Haute	11	84.6	545	81.1	14 3-5
Evansville	17	77.3	343	76.2	13
Fort Wayne	14	100.0	369	97.9	16 2-5
South Bend	14	93.3	342	85.1	15 3-4
Muncie	11	84.6	239	90.5	13 1-3
Hammond	3	75.0	53	23.0	12 1-6
La Fayette	8	100.0	230	95.8	20
Richmond	13	92.9	154	98.1	15 1-2
New Albany	7	77.8	97	95.1	13 1-5
Total	124	88.6	4,087	86.7	15 1-6

a Based on prevailing number employed.

Probably no more striking example of extremely seasonal industries exists than in California. While the average number of employees engaged in canning, for instance, was 7,757 in 1909, the maximum was 160,607 in August and the minimum 2,781 in February. In the lumber industry, employment in January was less than half of what it was in July. Manufacturing is intricately connected with agriculture, since vegetable and fruit growing, and canning and the hop industry are so predominant. The demand for labor is seasonal in the extreme, and a permanent settled working popu-

[34] Bureau of Labor Statistics Bulletin, 160, p. 15.

lation, with inducements and opportunities for organization being lacking, there has grown up a general indifference on the part of employers and careless treatment of employees.

The hearings of the Commission on Industrial Relations at San Francisco emphasized the seasonal character of employment. The cutting season for asparagus begins in March and is followed by the canning season, beginning in April and continuing to July. The strawberry season begins in May and lasts sometimes until November. The season for peas is less than one month, for peaches from July 15th to October 1st, and for other deciduous fruits about three weeks, altho in some districts by rotating the crops the season for deciduous crops, other than peaches, is extended to as long as six weeks. The largest canning plants in San Francisco do not operate any longer than from April 1st to December 1st, altho on about the latter dates the season for citrus and olives begins and some canning employees can get work in these industries. The heavy rush season in fruits and vegetables comes in July, August and September, while the canning plants and nearly all employment stops in December, January, February and March. In the hop industry only a few are employed in the winter, with a slight increase from February until the middle of August, when harvest time starts and a rush season, that lasts for a month or six weeks. The Horst Company, which operates a number of ranches in California and does 20 per cent. of the hop-growing in that state, employs only

about 150 people in the winter, in the spring probably about 300 or 400, and in harvest time about 1,500, the harvest force being unusually small because this company has perfected a hop-picking machine. Wages paid by the Horst Company are fairly illustrative, not only of the hop industry, but also of other similar industries, since the labor supply is so mobile and competition among industries prevails in rush seasons.

Irregular Employment.—It is difficult, in the absence of sufficiently exact data, to determine how much unemployment and loss of time generally are due to seasonal fluctuations in the activity of an industry within any normal year and how much to irregularities resulting from the conduct of industry. In the foregoing some of the clearest cases of seasonal fluctuations have been mentioned, yet in practically all industries, some more than others, employment is irregular, not only because of the seasonal variations which can be foreseen, but because of such methods and conditions as the necessity of cutting down the cost of production (including labor cost) in order to maintain even fair profits, the practise of piling up orders, contract work, irregular work, such as dock work and the like.

The steel industry furnishes an excellent example of the industrial practise that results in irregularity of employment which can not be foreseen by the worker and which is so peculiarly a menace to his economic security and peace of mind. The Federal investigation of 1910 into conditions of employment in iron and steel brought out very clearly the policy of the indus-

try to "operate at its fullest capacity during active demand, then, during a decline in the market, to shut down completely and await an accumulation of orders or the development of better prices."[35] Taking the five principal departments in a large number of plants, the report presents the following significant statistics:

Number of Weeks in Operation	Employees in each period	
	Number	Per cent.
Under 28 weeks	4,906	5.4
28 to 32 weeks	2,287	2.5
32 to 36 weeks	4,168	4.5
36 to 40 weeks	8,559	9.4
40 to 44 weeks	13,648	15.3
44 to 48 weeks	23,015	25.4
48 to 52 weeks	25,262	27.7
52 weeks	8,912	9.8
Totals	90,757	100.0

Differences in regularity of operation among establishments are seen in practically all industries. For instance, in a single locality, Paterson, New Jersey, in a normal year, only 81 per cent. of the silk mills operated 300 days, as shown by the following tabulation compiled from the Federal Woman and Child Wage-Earners' report:

NUMBER OF SILK MILLS IN OPERATION A SPECIFIED NUMBER OF DAYS DURING A NORMAL YEAR IN PATERSON, NEW JERSEY

Number of Days in Operation	Establishments		Employees	
	Number	Per cent.	Number	Per cent.
300 days and over	112	81.2	12,417	79.9
275 days to 299 days	18	13.0	2,301	14.8
250 days to 274 days	4	2.9	629	4.1
225 days to 249 days	..	...	...	...
Under 225 days	4	2.9	193	1.2

[35] Report on the Conditions of Employment in the Iron and Steel Industry, Vol. iii, p. 206.

Or, in a large plant, as shown in the following statistics giving the number of employees on the pay-roll of a Chicago meat-packing company at the end of each four-week period throughout a year:[36]

FLUCTUATIONS IN EMPLOYMENT, COMPANY 2

Date	Number of Employees	Date	Number of Employees
November 20	6,523	June 4	5,641
December 18	7,041	July 2	5,847
January 15, 1910	6,799	July 30	6,272
February 12	6,317	August 27	6,520
March 12	6,119	September 24	6,754
April 9	5,862	October 22	7,046
May 7	5,702		

Twenty-five per cent. of the workers in this establishment alone were unemployed during the year, and in some departments, as Mr. Kennedy remarked, approximately one-third of the time of the worker was lost through unemployment. The differences in the steadiness of employment in different occupations and departments of plants in various industries, such as in Massachusetts brush and candy factories and iron and steel manufacturing, have already been alluded to. In many industries the manufacturing end has been made subject to the selling end. The activity of the sales staff is really the barometer of the activity of the plant. The result is that instead of attempting to secure a steady flow of orders—and the kind of orders that will make possible a steady output—emphasis has been laid on the developing of a sales department or staff that will "get orders" regardless of the effects of this irregularization

[36] John C. Kennedy: Wages and Family Budgets in the Chicago Stockyards District.

of industry on the efficiency of the manufacturing force or the welfare of the workers. Closely allied with this practise—and in many instances a direct result of it—is carrying on the pay-rolls a larger number of workers than can be afforded steady work all the time. In some cases, as is well known, the manufacturer prefers to keep workers on, even tho they can not earn full-time wages, rather than discharge them. This is done not only in periods of inactivity, but all the time, from the best-intentioned motives, altho the economic soundness of the practise is open to serious question. In other cases the manufacturer deliberately adopts this plan for the purpose of having on hand a reserve of labor on which he can draw at any time that the market for his production may warrant it.

How far differences in steadiness of employment are due to the practise of individual establishments and how far to modern industrial organization and methods is difficult of determination. The two are bound together more because of a single condition, perhaps, than for any other reason or reasons, which may be described as a *necessity*—as distinguished from the mere desire or aim—of cutting down the cost of production in manufacturing. Overcapitalization of certain industries, it has been claimed, renders necessary the seizing of every opportunity to cut down operating cost in order to pay dividends, even tho the industry be practically controlled by a single corporation or group of employers. That competitive conditions bring about the same necessity is a familiar fact. It was brought

out in testimony at the hearings of the Commission on Industrial Relations at Butte, for instance, that some mines operate steadily all summer and others work only two or three weeks. The Bear Creek miner, it was stated, worked steadily during the summer but for only two or three days a week. The reason assigned for curtailments was "danger of overproduction" because the Montana miners were in close competition with the mines in surrounding States.[37] In fact, the generalization is probably warranted that any condition in industrial organization or methods necessitating the cutting down of labor cost is apt to result in irregularity of employment. "It is obvious," says Mr. Beveridge, "that so long as the industrial world is split up into separate groups of employers—each group with a life of its own and growing or decaying in ceaseless attrition upon its neighbors—there must be insecurity of employment. . . . Unemployment, in other words, is to some extent at least, part of the price of industrial competition—part of the waste without which there could be no competition at all."[38]

Other conditions in industrial organization and practise, which may or may not be related to the conditions mentioned above, result in irregularity of employment. The contract system, such as prevails in building, is undoubtedly a prolific cause of lost working time and lack of "jobs." Not even the highly developed organization of labor and its limitation of the supply of

[37] Butte Hearings.

[38] Unemployment, A Problem of Industry, p. 235.

skilled labor in any given trade are sufficient to prevent irregularity of employment even during "seasons" of work, altho the success of a union in raising the rate of wages may discount the loss of wages through unemployment and provide an adequate annual family income. This system of a large number of labor markets—a number as great as the total number of employees—is not only nation-wide, but it is to be found in almost every industry and every locality. The well-known conditions among the dock workers in London and Liverpool find a counterpart, for example, among the dock workers of New York City, except for the fact that conditions are much worse in the American port.

The situation was brought out in a graphic manner by testimony before the Commission on Industrial Relations at its hearings on the dock workers of New York City. From one-third to ten times as many workers were seeking employment as were actually employed or needed, the hiring being done by stevedores, who, it was charged, are unfair in distributing the available employment. Altho the hours of hiring were seven, one and seven o'clock, men were "hired and fired" at all hours. There is not only no certainty as to the time of employment and irregularity in the seasonal demand for labor, but there is no certainty for the great majority of men as to the length of time a single job will last. In order to earn $9 or $10 a week, representing three or four days labor, the men are compelled to spend practically all of their time, including Sundays,

at the piers. The rush for "preference checks" at the Hoboken docks, for instance, is so great at times the men are beaten back with water hose and clubs. The desire to lower the cost of handling freight, and uncertainty as to the way the tonnage happens to come in (a condition worse in New York than in Liverpool, because the tides in Liverpool are a regularizing factor), and the tendency on the part of unemployed workers from other industries to concentrate where the chance of employment is greatest, are factors that are fundamental.

The familiar spectacle of crowds of men at the gates of steel mills every morning is but another illustration of the system of haphazard employment of unskilled workers that is seen in its extreme form in the employment of dock workers. The gangs of laborers that are used in iron and steel plants, as well as in other large establishments where unskilled workers are employed to a considerable extent, are not only employed temporarily for a few hours, a few days, or a few weeks, but are rarely composed of the same individuals for more than one "job." The use of this system—or lack of system—in employment was clearly brought out by witnesses before the Commission on Industrial Relations in its hearings on labor conditions in the Chicago stockyards.

It was shown that a large proportion of stockyards employees were unskilled and were employed from day to day. A group "would assemble every morning and the employment agent would pick out the number that

they (the employers) thought they needed for that day," stated one witness who had made a careful investigation of labor conditions in the industry. "They do not hire these unskilled laborers by contract, for a week, or a month, or a year, or anything of that sort. A man never knows whether he is hired for an hour or for a week."[39] One of the largest employers in the stockyards admitted that probably 25 per cent. of the employees are subject to irregular employment on account of irregular receipts of live-stock at the yards.[40] According to the statement of the general superintendent of the packing plants of Armour & Company, the actual method of hiring is as follows: There is an employment bureau at each plant, under supervision of the superintendent or assistant superintendent. The man in charge receives a request each morning, or preferably the night before, showing the number and kind of men needed by the foremen in the various departments. The employing is concluded about 8 o'clock in the morning and any who are waiting are notified that they are not needed. The number who appear in the morning at each plant is sometimes as great as two or three hundred. A man is given a new check number each time he is hired, no matter whether he is an old employee or not, but the attempt is now being made to give old employees the preference. Altho some care is used in the selection of men for certain kinds of work, the men

[39] John C. Kennedy. Transcript of the Public Hearings of the U. S. Commission on Industrial Relations on Life and Labor Conditions in the Stockyards, Chicago, April 15-16, 1915.

[40] J. Ogden Armour, *ibid.*

are selected from the waiting groups by "tapping them on the shoulder." It was stated that the principal difficulty in the way of employing the same individuals from day to day was that those who were regularly employed soon were able to do more skilled work.[41] A union official charged that even those engaged in regular occupations and earning as much as $1.85 a day were discharged upon the excuse that work was slack, and that others would be hired the next day to do their work at reduced wages.[42]

In a different category, perhaps, from the loss of working time and unemployment due to conditions referred to above, are conditions that result in lost time by those who are regularly employed. These conditions are familiar to every factory worker. Piece-workers in the New York dress and waist industry, for instance, were found to lose working time on account of certain prevailing practises in shop management, such as waiting for work, waiting for parts, waiting for repairs on machines, or cleaning or repairing machines by the workers themselves, and time taken to receive instructions from the foremen or instructors as to the way the work should be done. The workers do not get paid for time spent in these ways, and their amount of possible working time is reduced. In addition to these practises, are loss of time due to the necessity for attending to personal needs and in repairing defects in work returned by examiners. Loss of working time,

[41] John E. O'Hern, *ibid.*

[42] Dennis Lane, General Organizer for Amalgamated Meat Cutters and Butcher Workers of North America, *ibid.*

due to conditions such as the above in the New York dress and waist industry, was found to amount in some instances of workers who were carefully observed to as much as 30 per cent of the total possible time, while the average for all of the workers for whom data were obtained was approximately 5 per cent., the lost time varying with the occupation as well as with the individual.

The problem of unemployment, or irregularity of employment or unemployment, is not concerned in these conditions, of course; the conditions, however, have the same effect, in the case of piece-workers, as lost earnings.[43] The practise of "leveling wages," so-called, of piece-workers is also a familiar one and less defensible. To borrow a graphic illustration from a recent article:[44] "Molly Brown is engaged on piece-work and has been in the habit of making eight dollars a week. If during the first four days of the week she is given what are known as 'fat jobs' and has already earned her eight dollars by Thursday night, the forewoman sees to it that she gets little or no work on Friday or Saturday. Why? Because if Molly should earn nine dollars or perhaps ten dollars at piece rate this week, the forewoman is afraid that she will begin to rate herself as a nine-dollar or ten-dollar girl and that would be troublesome. The net result from an economic standpoint is two days of unemployment."

[43] Bureau of Labor Statistics, Bulletin, 146, Wages and Employment in the Dress and Waist Industry, pp. 284-85.

[44] Casual and Chronic Unemployment, by M. L. Cooke, Director, Department of Public Works, Philadelphia, Annals of the American Academy of Science and Political Science lix; p. 195; May, 1915.

While the employer's motive in such an instance may be to prevent the setting of a precedent in earnings that might form a standard undesirably high from his point of view, the practise results not only in restricting wages to a low level by means of removing the opportunity to earn higher wages, but in necessitating the presence of another worker to do the work that might be done by one. The actual situation in a number of cotton-mill families was clearly shown in the budgetary studies made in the course of the Woman and Child Labor Investigation a few years ago. Altho the mills in which the wage-earners of these families were employed were operated steadily throughout the year, the weekly family income in all instances rose and fell in wide variations throughout the year. In one week a family would have a competence; for the next two weeks its income would be below what was found to be sufficient for a fair standard of living. Part of this fluctuation in income was due to disabilities and voluntary idleness, but the workers complained that the management of the mills kept more workers on the pay-rolls than was necessary.

At the basis of the conditions that result in irregularity of employment (as distinguished from the more or less regular cyclical and seasonal fluctuations) lies a fact whose significance can not be overlooked in a consideration of the causes of the wage-earner's loss in working time. This fact is the attitude of the modern employer toward the workers. There are strong reasons in the evolution of industry for him to have gradu-

ally adopted the point of view from which he looks upon the workers as the supply of labor in a strictly impersonal sense, to regard it not even quantitatively, but as a force which means so much productive power in the same sense as the steam or electricity that he requires to give motive power to his machines. This force may be a small number of regular efficient workers or a large number of changing, irregular workers whose efficiency reaches a maximum for only a given period. The development of mechanical processes, however, has tended to make it possible for a larger proportion of unskilled and semi-skilled workers to constitute the working force than ever before, and the incentive which once existed in the handcraft period of industry to retain individual workmen has nearly passed away. The impersonal employer—the corporation—has removed the opportunity for intimate relationship between man and master.

The fierce competition of manufacturers in the national markets of to-day has forced employers to abandon many practises that once were of manifold benefits to their employees, among them being the employment in any given plant of a group of workers who consisted pretty much of the same individuals and of the same number of individuals from month to month and from year to year. The "reserve of labor" which is regarded as necessary in probably the great majority of modern industrial plants is evidence enough of the altered viewpoint of the employer. The labor reserve of almost any locality in the United States—

in fact, the presence of a great labor reserve in the nation as a whole—makes it possible for industries paying low wages or offering extremely irregular employment at high wages, to be called into existence by a demand for products that under different conditions would be insufficient to admit of the financial success of their undertaking and operation.

The existence of such conditions as have been referred to in the foregoing pages postulates an attitude that places human labor more and more in the category of mechanical power. Without discussing here the degree in which the employer is to blame, or in which he is himself a victim of an industrial system, the fact of such an attitude is fundamental to the entire problem of those modern conditions under which they who have human labor, physical rather than mental, as their sole stock in trade, must work and live and perform their functions as integers of society. Certainly it has a very definite bearing upon regularity of employment as one of these conditions.

Conditions Determining the Worker's Ability to Grasp or Retain the Opportunity to Be Employed Which Industry Offers.—In the statement by the Federal Bureau of Labor [45] of the causes of loss of working time by over 12,000 of wage-earners' families, it was seen that the closing of plants, slack work, inability to get work and accidents were stated to be the causes of idleness in about 52 per cent. of cases of heads of families, while sickness of worker was the cause in about 23 per

[45] See p. 113.

cent. of cases of heads of families. Furthermore, sickness, together with closing of plants, slack work or inability to get work, was the cause in over 6 per cent. more. Voluntary vacation was the cause in about 6½ per cent. of cases, while strikes were responsible for loss of time in but 2 per cent. of cases. The importance of ill health as a cause of loss in working time can not be overlooked—as it frequently has been—in a consideration of the problem of unemployment. The heads of families, approximately 3,000, who were idle during the year on account of ill health lost on an average very closely to four weeks' time.

These statistics, however, are based chiefly on the experience of workers who are capable of fairly regular employment. The causes of idleness, as stated by 12,000 selected heads of wage-earners' families, do not include a number of other causes that result in the inability of the worker to grasp or retain the opportunity for employment which industry actually offers. Among these have been mentioned old age, deficiencies in the industrial training of the worker, lack of facilities to bring the worker and the job together, and conditions resulting in the immobility of the labor supply and causes affecting industrial workers, such as dishonesty, laziness, intemperance, irregularity, "shiftlessness" and stupidity, which are commonly included under the general term "deficiencies of character." "Between individual workmen even of the same type," as Mr. Beveridge remarks, "there exist differences of every kind and degree. In the men of each

trade is to be found every gradation of industrial value. Some differences affect the most obvious technical qualities; one man is stronger or speedier, or more intellectual, or more skilled than another. Others affect the less obvious qualities which make for continuance in employment—assiduity, regularity, punctuality, power of obedience and cooperation. Others affect rather the power to pass from one type of work to another, *i.e.*, adaptability. There can be no doubt of the existence of these differences, or as to their effect in determining the incidence of unemployment.[46] Workers are unequal in efficiency, and "to them competition deals out stern justice"—to borrow the language of Mr. Charles Booth—"whatever the cause of their inefficiency may be."[47]

The potency of any or all of the factors named above —except, perhaps, sickness, accidents, and old age in a limited way—as causes of idleness can not as yet be statistically computed. That they are potent is unquestioned. The fact is that cyclical and seasonal fluctuations and irregularities in the demand for labor continually cause some workers to be laid off and that some workers are kept on more or less regularly. Whether or not a worker is to be among those dropt or among those to be retained is determined largely by the employer's opinion of his efficiency. Even if he is efficient, sickness or old age will overtake him, and he may lose in the one case, and certainly in the other, his economic

[46] Unemployment; A Problem of Industry, p. 138.
[47] Life and Labour of the People.

status. The economic security of an individual worker is determined by the factors which make or mar his ability to grasp or retain the opportunity to work that industry offers, just as it is determined by the factors which govern the available employment, altho the relative effects of these causes, as exprest in working time lost, can only be stated in a general way.

The social aspect of individual deficiencies, however, suggests an important consideration with regard to the conditions that cause them. Individual differences may be—and often are—caused by industrial and social conditions. How far the worker's inability to retain employment, even when it can be retained, such as dishonesty, laziness, stupidity and the like, are the outcome of his social inheritance and environment, is of course a matter of speculation as yet. But there is a growing belief that intemperance on the part of the worker is the fault, at least partly the fault, of the community and sometimes of the industry. Sickness, it has been found, is due not merely to the individual's carelessness as to his health and ignorance of how to preserve it, but to conditions under which he must work, as well as conditions under which he must live, which he could, and would, improve if he had sufficient and regular enough wages.

Old age is usually recognized as a constant factor; but the question may well be asked if the demand for young men in certain industries and occupations and the strain of work and insufficiency of living in making men "old before their time," are not conditions

that cause an unnaturally high proportion of unemployed or casual workers among those who ought to be able to retain what opportunity there exists to earn a fair living. Too much charity tends to destroy the worker's incentive to be employed and to weaken his self-reliance. Certainly the absence of adequately developed vocational training which permits so many young workers to enter "blind alleys" is a condition which is well recognized as a shortcoming of social responsibility. There can be little doubt that conditions rendering the labor supply too immovable to respond fully to the evolutionary changes and to fluctuations and irregularities in the demand for labor, are not deficiencies in the character or ability of the worker; and the need for an efficient system of labor exchanges for the purpose of equalizing, as far as possible, the demand and the available efficient supply, is already felt to be an obligation resting upon society. Furthermore, the loss of working time itself, interpreted in terms of reduced wages, and the irregularity of employment and all economic insecurity, are not the least among the causes of the worker's physical and mental ability to obtain employment. All of the direct effects of unemployment are in themselves causes of unemployment, and these form a vicious circle into which a large proportion of workers are constantly being entangled and from which they are cast aside into that "scrap heap" which, in the parlance of discussions of the problem, contains the "unemployables."

There is no longer any doubt that certain specific

conditions in the industry which affect the worker's ability to retain his employment are already recognized as coming within this social conception of the responsibility for them. These specific conditions are occupational diseases and accidents. As yet the question of whether occupational diseases can be distinguished, so far as causes and the responsibility for them are concerned, from the general problem of the wage-earner's health, is not settled. The undoubted tendency in other countries is to recognize it as a problem of labor that must be met by the employer and the public as well as by the employee.

Effects of Unemployment

Loss of working time, irregularity of employment and the entire series of conditions which have been reviewed in the foregoing pages as constituting what is commonly called the problem of unemployment, have for their general result the economic insecurity of the worker. Because of different conditions in the various trades, occupations, industries and localities, this economic insecurity is more intense among some workers than among others. A large class of workers truthfully may be said to possess no security at all. Their means of livelihood in the present is irregular in the extreme, even casual; their future livelihood is not simply uncertain, it is almost hopeless.

Such a condition of insecurity can not exist, of course, without causing some very unwholesome results from the standpoint not only of the worker, but also of the

employer and of society. What have been alluded to as causes of unemployment and loss in working time have already been pointed out as in themselves effects. In other words, in the natural interdependence of all economic factors, the greater the economic insecurity of the worker, the more active will be rendered the causes of that insecurity. This is the inevitable prospect that a view of the entire problem presents. At the same time, without going into a detailed description, attention may be called to certain specific results which will suggest more correctly the significance of the problem in the life of the wage-worker.

First, is the actual loss of earnings or decreased wages. It is not necessary to point out that so far as inadequate family income is caused by the failure of the breadwinner to earn his full wages, the necessity of supplementing family income from the earnings of wife and children and from boarders and lodgers is created. Thus, "sweating" and interference with normal family life are results.

Second, irregularity of income is in itself a breeder of wasteful living. A family may be in want for weeks; it may be in comfortable circumstances and in a position to save for the next few weeks. Studies of family life among workers with irregular income have shown that imprudence is encouraged by the very irregularity of the providence.

Third, uncertainty of regular income and of regular employment can not but have deleterious effects upon the worker's efficiency and his contentment. Worry

over a matter of such vital importance as one's livelihood, especially when the welfare of the family is at stake, is recognized as a prolific cause of the individual's deterioration. It has been observed that workmen in the iron and steel industry, for example, lose skill during any shutdown that lasts more than a few days.[48] Irregular employment tends to demoralize the worker and to make him not only incapable of sustained effort, but unwilling to work regularly.

Fourth, the tendency is for the worker to lose rather than to gain industrial status when he is thrown out of employment. It has been repeatedly found by investigators that the worker, especially where he is the breadwinner of a family, is likely to take any job he can get when he is unemployed. Sometimes this is a steady job, but often at a lower rate of wages than the one he lost. More frequently, in the extreme necessity for having an income of some sort, he gets a temporary job because temporary jobs are more easy to get. The probability is that he will, when weakened by the lack of adequate food and healthful living conditions, and demoralized by irregular habits of work and living, gradually drift into the casual labor class. Of 7,000 applications for jobs from workers applying at the Cooperative Employment Bureau in San Francisco, according to testimony before the Commission on Industrial Relations, one-half were incapacitated for work from lack of nourishment, disease and exposure.[49]

[48] Conditions of Employment in the Iron and Steel Industry, Vol. iii, p. 380.

[49] Testimony of H. R. Bogart, Financial Secretary of Associative Charities, San Francisco Hearings on Seasonal Labor Problem in California.

A study of 5,000 dependent families coming under the care of the Charity Organization Society in New York City showed that unemployment was a cause of disability of over 69 per cent. of the families. The Federal Immigration Commission records of over 30,000 charity seekers in 41 industrial centers (excluding New York City), involving 118,000 persons, showed that unemployment was a cause in 43.2 per cent. of the cases. The casual laborers at the docks in New York are comprised in large part of those who have gradually lost their status in industries and the dock worker continues to slip down in the scale until he reaches the class of "shenangoes," the down-and-out longshoremen capable of only light work, and finally becomes a burden upon the city or private charity.

Fifth, there is thus created a great class of irregularly employed persons, composed of casual male workers and women and children workers. It is upon this kind of labor supply that "parasitic" industries are able to exist, and that other industries are able to rely, for unskilled work without regard to the welfare of the worker. Low wages can be paid because the supply of cheap labor is so great, and women and children are called into industry for a few weeks or a few months in the year at wages far below the standard necessary to maintain regularly employed workers.

The evidence on this phase of the problem is so extensive and so conclusive that it is not necessary to restate it in detail. The Commission on Industrial Relations' investigations and hearings on labor conditions

in California, for example, brought out the fact that, while the great majority of workers in the California canneries are women and children, the seasonal irregularity of employment is so great that there has grown up a large class of migratory homeless laborers. It has been estimated that 100,000 unskilled workers are employed in California fruit and vegetable growing and canning and that probably one-third of these laborers have no permanent voting place, home or family. These drift from place to place during the various seasons, concentrating in the large towns and cities in November and December. In 1913-1914 San Francisco, Los Angeles and Sacramento each had thousands of these migratory laborers, from 10 to 40 per cent. of them being destitute, in addition to the thousands that drift during the winter from the colder climates of Nevada and Oregon and even the Middle West. During the winter of 1913-1914, 2,500 unemployed laborers overflowed from San Francisco and drifted into Sacramento, Oakland, Benecia, Roseville, Woodland and other localities in search of work, shelter and food.

The same condition was found to be true also in the Middle West and in the East, not simply because of seasonal industries, but in industries that are among the most independent of seasons. In the steel industry, for instance, it was found that "besides the fluctuations due to industrial conditions, there is also much unsteady employment due to the fact that many of the men do not retain any one position for a very long period, but go from plant to plant and take whatever

work they can secure wherever it is offered. . . . Many of the men leave on the slightest rumor of a shutdown in the hope of obtaining work elsewhere before really serious trouble has come." [50] The shifting of the labor force in one large plant in each of the years 1905 to 1910 was found to be as follows:

	1905	1906	1907	1908	1909	1910
Total employees during the year	25,654	29,644	28,313	17,747	24,523	30,040
New employees during the year	14,023	13,983	11,705	4,169	10,792	13,043
Per cent. of total employees leaving plant and not returning	38	44	51	22	30	48
Per cent. of total employees leaving work temporarily	26	23	24	39	33	20

To sum up, the effects of unemployment are threefold, according to their incidence:

1. The effects upon the workers are insecurity of economic status with a large percentage losing their status and becoming subject to decreased, irregular and often insufficient income, with its attendant misery, inability to regain economic competence, demoralization and dependency.

2. The effects upon industry are lessened efficiency of a large proportion of workers, and the creation of a casual labor supply which affords the opportunity for uneconomical cutting down of labor costs, assists in creating a condition whereby grossly overcapitalized corporations can exist in competition with soundly managed business, calls into existence parasitic industries that, under other than maladjusted conditions, could not live, and permits an irregularization of industry which is

[50] Conditions of Labor in the Iron and Steel Industry, vol. iii, p. 380.

beneficial neither to business nor to the workers, nor to communities or the nation as a whole.

3. The effect upon the community, particularly in those localities where irregular employment is most pronounced, is the presence of an unstable, shifting population, composed of non-home-owning, ill-paid workers and their families unable to discharge the responsibilities of the average citizen, who, living according to low standards, are subject to disease, and who frequently become burdens upon the public as dependents and delinquents. The economic loss alone to a community is great, while the loss in other respects is incalculable.

V

WORKING CONDITIONS

HOURS OF LABOR

The Trend Toward a Shorter Working Day

SIGNIFICANT developments have recently occurred in the movement for shortening the hours of labor. The most important piece of eight-hour day legislation was probably the temporary and emergency railroad law of September 3, 1916, which was enacted to avoid the occurrence of a threatened strike. It declared "eight hours shall be deemed a day's work and the measure of standard of a day's work" for the purpose of reckoning the compensation for services of engine and train crews in interstate commerce.

The judgment of American society as to the length of the work day is indicated by the fact that all States of the Union, besides the Federal Government, with the exception of six, have some sort of legislation limiting the hours of labor. Where States and cities have dealt with labor they have signalized their support of the short work day by decreeing its application to public works. This is the case in 28 States, not including the territories of Hawaii and Porto Rico. Wherever legislation has entered the field of private employment, it has done so with a view to ameliorating conditions in the more arduous

occupations where the evil effects of long hours are the most threatening. Fourteen States limit the hours to 8 in mines, 9 States in smelters, 1 State in electric light and power plants, 3 States in coke ovens, 2 States in blast furnaces, 2 States in cement and plaster mills, 1 State in plate glass works, 5 States in rolling, rod and stamp mills, 3 States in tunnels, 2 States in high air pressure works, 1 State in irrigation works, 8 States for railroad telegraphers; and 9 States have limited the work day in general to 8 hours unless otherwise stipulated by contract. This, however, is a useless restriction—or rather no restriction in practise as it is quite simple to make the necessary stipulation. There are 27 States which limit the hours of work to 9 a day, 19 which limit them to 10, 1 to 11, and 5 to 12, but only in certain hazardous occupations or employments liable to the abuse of excessive hours, such as transportation and continuous industries.

Two States have adopted the limitation of the hours of labor in ordinary manufacturing without giving consideration to the excessive arduousness of the occupation. Mississippi declared 11 hours a working day, but did not penalize overtime. Oregon, in its law of 1913, declared "that no person shall be hired nor permitted to work for wages, under any conditions or terms, for longer hours or days of service than is consistent with his health and physical well-being and ability to promote the general welfare by his increasing usefulness as a healthy and intelligent citizen." The law prohibits the employment of any one for more than 10 hours in any one day, with certain exceptions, but permits overtime not in excess of 3

hours, penalizing such overtime by requiring payment of time and one-half of the regular wage. This law of Oregon and the Federal eight-hour railroad law already referred to, establish the principle of the short working day as the measure for the payment of wages and the standard of a day's work regardless of whether the actual work to be done can be completed within the specified hours or not. The two laws differ, however, in that the Federal law is merely a temporary measure, a sort of compulsory investigation law, while the Oregon law establishes a public policy for that State.

Whatever may be the net effect of legislation in reducing hours of labor, it is probably true that more, or as much, has been secured through private collective bargaining between employers and workingmen. In fact, organized labor through the Convention of the American Federation of Labor in 1915 recorded itself as against securing the eight-hour day through legislation rather than through private negotiation. This was, indeed, an extraordinary resolution, and it is quite probable that the fact that the resolution was introduced in the Convention by the socialist element may have had something to do with its defeat by that group in the Federation which is violently opposed to everything favored by the socialist wing. Partizan passion may have obscured the issue. It seems difficult to explain it otherwise.

Private bargaining has attained the best results in shortening the working day in the skilled trades and in the cities where labor is more intelligent, aggressive and coherent. At the present time, trade union members in 46

different trades have secured for themselves the eight-hour day through agreements with their employers. According to the report of the Annual Convention of the American Federation of Labor of 1915, these trades include carpenters and joiners, coal miners, typographical printers, cigar-makers, granite cutters, painters, decorators and paper-hangers, plasterers, plumbers and steamfitters, lathers, tile layers, composition roofers, railroad telegraphers, stone cutters, marble workers, sheet metal workers, elevator constructors, bookbinders, hodcarriers and building laborers, brick, tile and terra-cotta workers, cement workers, compressed air workers, steam engineers (in building construction), pavers, rammermen, flagg layers, bridge and stone curb setters, paving cutters, plate printers, printing pressmen, stereotypers and electrotypers, tunnel and subway constructors, bridge and structural iron workers, asbestos workers, quarry workers, metal miners, flint glass workers, slate and tile roofers, cutting die and cutter makers, stationary firemen, papermakers, photoengravers, powder and high explosive workers, and bricklayers.

In the machine trades, a movement for the reduction of hours, notable for its rapid progress,[1] took place during the late summer of 1915. Altho it is true that this movement chiefly affected firms having contracts for making war munitions, it is none the less true that the gain will probably be permanent, as the common experience is that it is difficult to increase hours of labor

[1] Monthly Review of the United States Bureau of Labor Statistics, Washington, February, 1916, p. 37.

once they have been reduced. The reduced hours of labor in these establishments have, in practically all cases, been effected with no reduction in weekly wages, while in many cases there have been increases in wages. Altogether, 83 firms established an 8-hour working day; 3 were reported as having established a 49½-hour week, 5 a 50-hour week, and 2, a 54-hour week.

An investigation by the Federal Bureau of Labor Statistics in 1915 included data from 47 cities located in 32 different States, covered 5,548 scales or contracts, which affected 676,571 union employees in 11 occupation groups, and showed a tendency toward reduction in the hours of labor of union workers. Over one-half (53.7 per cent., or 2,992 cases) of the workers included worked 8 hours or less per day. The 11 occupation groups included in these statistics comprised bakery trades, brewery and bottling-house workmen; building trades; chauffeurs, teamsters, drivers; freight-handlers; granite and stone trades; metal trades; mill work; printing and publishing (book and job); printing and publishing (newspaper); soft drink establishment employees.

Other investigations made annually by the U. S. Bureau of Labor Statistics follow the movement in hours of labor in some of the principal industries. For the men's clothing industry, full time hours per week in 1914 were reduced 1 per cent. over those prevailing in 1913, 6 per cent. over 1912, 7 per cent. over 1911. Full time hours per week in this industry in 1914 varied from 44 to 60; and the average for most occupations was 51 and 53. In that

respect, hand cutters and machine cutters were the best situated, working respectively 48.6 and 48.4 hours per week. In the hosiery and underwear industry in 1914 the average hours were 55 a week, which was a reduction of 5 per cent. over hours prevailing in 1910 for 21 occupation-groups in the industry. For some of the principal occupations in the industry the weekly hours in 1914 were as follows:

Hosiery and underwear, male	55.3	Knitters, footers, or toppers, hosiery, female	54.9
Finishers, underwear, female	54.1	Loopers, hosiery and underwear, female	54.8
Inspectors, folders, hosiery and underwear, female	54.5	Seamers, underwear, female	54.1
Winders, hosiery and underwear, female	54.1		

In woolen goods the hours of labor per week have been reduced 3 per cent. in 1914 below the prevailing hours of 1910; the average weekly hours were generally 55. The data for certain occupations are as follows:

Burners, female	54.6	Weavers, female	54.8
Laborers, dye house, male	54.8	Spinners, mule, male	55.8
Weavers, male	55.2		

The tendency continued in 1914 toward a reduction of hours in the cotton goods manufacturing industry, being 3 per cent. lower than in 1911; the average hours per week being 56.5 for cotton goods manufacturing and finishing. In certain occupations the hours per week were as follows:

Spinners, female	56.9	Laborers, dye house, male	56.1
Weavers, male	56.8	Fullers, male	56.0
Weavers, female	55.8	Printers, male	55.5
Loom fixers, male	56.8		

enough to allow a rest and return home, but generally involves wasting time in the downtown sections.

As regards the States in which the proportion of wage-earners working in establishments observing 72 hours or over per week, it appears that in Colorado 11.4 per cent. are so engaged, while Texas comes second with 10 per cent., Oklahoma third with 9.3 per cent., and Louisiana fourth with 8.4 per cent. These high averages are to be explained by the fact that in these States are centered a fairly high proportion of those industries which by their economic nature are continuous or observe long hours everywhere.

Three States have made investigations into the amount of seven-day work in certain occupations. The most recent one in Massachusetts is that of 1907. Out of 57,955 employees in commercial employments and trades reported in the course of the investigation, about 42 per cent. worked seven days a week. Minnesota since 1901 has reported in the factory inspection reports the number of employees who worked seven days a week. This varied from the lowest in 1905, or 3.7 per cent to a maximum in 1909, or 11 per cent., *i.e.*, affecting over 21,000 employees. In New York the Department of Labor reported in 1910 that out of trade union employees in transportations, personal service, post-office work and stationary engineers, 69,907, or about 40 per cent., worked seven days a week. This high average is, of course, accounted for by the fact that the largest proportion reported were in steam railroad service. The following table shows the proportion of wage-earners in specified industries who

work, and in 1913, 36 plants reported 79.8 per cent. of all their employees in seven-day occupations as compared with 20 plants which reported in 1907 97.2 per cent. of their employees in such occupations. No definite statement as to actual reductions in seven-day work can be made for the other departments of the steel-making industry, because the amount of seven-day work is dependent upon industrial conditions, a year of large production making for considerable seven-day work, and one of small production usually resulting in a reduction. In 1913, however, only 10.8 per cent. of the employees of the 10 plants covered by the Bureau of Labor Statistics worked seven days per week; in fact, the six-day week prevailed generally through the seven-year period, 1907 to 1913. In open hearth furnaces in 1913, 34.2 per cent. of the employees worked generally 7 days per week, and in blooming mills 12 per cent.

The Federal Census of December, 1914, the results of which are soon to appear, records a continued tendency toward a reduction in the length of the work day.

The Working Day in the Principal Industries

The 1909 Census of Manufactures showed that for all industries in the United States covering over six and a half million wage-earners, 76 per cent. were employed in establishments operating over 54 to 60 hours a week inclusive, practically 8 per cent. in establishments observing a working week of less than 48 hours, 7 per cent. in 48 to 54 hour plants inclusive, 5 per cent. in those operating

over 60 but under 72 hours a week, and approximately 4 per cent. in those operating 72 hours or over a week.

The census figures regarding hours of labor are admittedly inadequate in certain respects. No attempt was made to ascertain exactly the actual number of employees in manufacturing industries working a given number of hours per week. Variations from one period to another in an establishment were disregarded, and no note was taken of those employees in an establishment who worked longer or shorter hours than the prevailing hours worked by the majority of the employees. It is, however, generally true that all employees in an establishment work the same number of hours per week.

Considering less than 54 hours a week as a reasonably short working week, the Census enumerated 9 short-hour industries: Artificial flowers; feathers and plumes; printing and publishing; fur goods; malt liquors; marble and stone work; patent medicines and compounds and druggists' preparations; women's clothing; millinery and lace goods; turpentine and rosin. In marble and stone work, in printing and publishing, and in the brewery industry, 40 per cent. of the wage-earners were in establishments in which the prevailing hours of labor were 51 hours or less a week.

As compared with general manufactures, mines and quarries show more favorable conditions as respects hours of labor. This is probably due to legislation which has tended to protect the laborer in the more hazardous occupations. It is also true that the mining industry is highly organized. Only one large operator in the

bituminous region has succeeded in remaining non-union. He employs no union men and operates on the nine-hour day, while all other operators observe the union day of eight hours. The organized mine workers have now commenced agitation for the seven-hour day.

Excluding petroleum and natural gas wells, the census of mines and quarries (1909) showed that about one-half, or 48.2 per cent., of the mining and quarrying enterprises of the United States were on the eight-hour basis, while the other half were on a nine- or ten-hour schedule. Deep gold mines showed most favorable conditions, over nine-tenths operating on an eight-hour basis. Five-sixths of the copper mines, three-fourths of lead and zinc mines, more than two-thirds of all bituminous coal mines, three-fifths of placer mines, and slightly less than one-half of the granite quarries were operating at the time of the Census on an eight-hour schedule. The Census figures of 1909 show the following distribution of wage-earners according to prevailing hours of labor:

United States	Total average number	Per cent. of wage-earners in establishments where the prevailing hours were		
		Under 54	54 to 60 inclusive	Over 60
New England	1,101,290	9.1	89.2	1.8
Middle Atlantic	2,207,747	19.3	73.6	7.1
East North Central	1,513,764	14.9	77.9	7.2
West North Central	374,337	18.4	74.8	6.9
South Atlantic	663,015	11.8	68.5	19.6
East South Central	261,772	10.5	66.8	22.7
West South Central	204,520	9.8	66.7	23.6
Mountain	75,435	18.3	65.6	16.1
Pacific	213,166	20.6	72.2	7.2
United States	6,615,046	15.2	76.1	8.7

Decidedly contrasting conditions, however, still exist in other industries, particularly in those industries termed by the Germans "heavy industries." These are usually continuous employments. Summing up the figures of the Census of Manufactures of 1909 it appears that a trifle over 230,000 employees in the manufacturing industries of the United States, or approximately 3 per cent., worked 72 hours and over per week. Certain industries are conspicuous in regard to the proportion of the total average number of wage-earners who work 72 hours or more per week. Thus in order of their position in that respect stand the following ten industries:

Industries	Per cent. earners working prevailingly 72 hours and over per week
Sugar and molasses (not including sugar refining)	95.0
Blast furnaces (Census)	86.0
Blast furnaces (Bureau of Labor Statistics)	72.8
Oil, cottonseed and cake	76.4
Beet sugar	75.6
Ice, manufactured	65.5
Oil, linseed	60.0
Glucose and starch	57.8
Gas, illuminating	56.4
Sulphuric, nitric and mixed acids	44.3
Cement	39.4

Over 40 per cent. of the employees in the iron and steel industry in 1910, according to the Bureau of Labor Statistics, worked 72 hours and over per week. About one-fifth worked 84 hours and over per week.

In the wood pulp and paper industry the Tariff Board report (1911) showed that slightly over 15 per cent. of the employees (7,616) covered by the investigation

worked on a two-shift basis, *i.e.,* a 12-hour day. According to the 13th (1909) Census figures, about 21 per cent. in that industry worked 72 hours a week prevailingly. For the United States as a whole, therefore, it may be safe to estimate that 15 to 20 per cent. of the employees in the wood pulp and paper industry worked 72 hours or over a week.

As calculated from reports of the Bureau of Labor Statistics, about 60 per cent. out of 459 employees who did overtime work in April, 1908, in telegraph offices had an overtime day of 12 hours or over. No figures were available as to how many days were worked at that rate during the year. It may, however, be added that about 24 per cent. of the overtime workers during April, 1908, worked 50 or more hours during the month, that is, approximately two additional hours for each regular work day.

With the telephone companies investigated by the Bureau of Labor Statistics in 1909, overtime of two and one-half hours was worked at least one day a week. Sunday work was usual for two Sundays out of the month. This meant in general $57\frac{3}{4}$ to 61 hours of actual work per week, as the regular day was from $8\frac{1}{2}$ to 9 hours per day. Practically all the employees were women.

For both telephone and telegraph companies the hardships of work were not connected with long hours of actual work so much as with the split trick, *i.e.,* a trick on which the hours of an employee are divided into two periods of work in the course of the 24, involving a wait between working spells. This wait is usually not long

enough to allow a rest and return home, but generally involves wasting time in the downtown sections.

As regards the States in which the proportion of wage-earners working in establishments observing 72 hours or over per week, it appears that in Colorado 11.4 per cent. are so engaged, while Texas comes second with 10 per cent., Oklahoma third with 9.3 per cent., and Louisiana fourth with 8.4 per cent. These high averages are to be explained by the fact that in these States are centered a fairly high proportion of those industries which by their economic nature are continuous or observe long hours everywhere.

Three States have made investigations into the amount of seven-day work in certain occupations. The most recent one in Massachusetts is that of 1907. Out of 57,955 employees in commercial employments and trades reported in the course of the investigation, about 42 per cent. worked seven days a week. Minnesota since 1901 has reported in the factory inspection reports the number of employees who worked seven days a week. This varied from the lowest in 1905, or 3.7 per cent. to a maximum in 1909, or 11 per cent., *i.e.*, affecting over 21,000 employees. In New York the Department of Labor reported in 1910 that out of trade union employees in transportations, personal service, post-office work and stationary engineers, 69,907, or about 40 per cent. worked seven days a week. This high average is, of course, accounted for by the fact that the largest proportion reported were in steam railroad service. The following table shows the proportion of wage-earners in specified industries who

worked 72 hours or longer, according to the Census of 1909:

INDUSTRIES IN WHICH LARGE NUMBERS OF WAGE-EARNERS WERE EMPLOYED 72 HOURS OR MORE PER WEEK; 1909

Industry	Total average number	Wage-earners: 1909—In establishments where prevailing hours were: 72		Over 72	
		Number	Per cent.	Number	Per cent.
Beet sugar	7,204	508	7.1	4,934	68.5
Cement	26,775	146	0.5	10,427	38.9
Chemicals	23,714	514	2.2	4,193	17.7
Coke	29,273	49	.2	3,231	11.0
Flour and grist mills	39,453	7,132	18.1	338	0.9
Gas, illuminating and heating	37,215	2,890	7.8	18,473	49.6
Glucose and starch	4,773	658	13.8	2,102	44.0
Ice, manufactured	16,114	2,128	13.2	8,421	52.3
Iron and steel, blast furnaces	38,429	1,304	3.4	31,729	82.6
Iron and steel, steel works and rolling mills	240,076	49,364	20.6	2,954	1.2
Lime	13,897	415	3.0	1,145	8.2
Liquors, distilled	6,430	755	11.7	42	0.7
Oil, cottonseed and cake	17,071	12,568	73.6	477	2.8
Oil, linseed	1,452	616	42.4	255	17.6
Paper and wood pulp	75,978	15,706	20.7	751	1.0
Petroleum refining	13,929	222	1.6	2,366	17.0
Salt	4,936	431	8.7	156	3.2
Smelting and refining (not from ore)	2,147	23	1.1	664	30.9
Sugar and molasses	4,127	2,092	50.7	1,828	44.3
Sugar, refining	9,399	2,217	23.6	743	7.9
Sulphuric, nitric and mixed acids	2,252	130	5.8	867	38.5
Wood distillation (not including turpentine and rosin)	2,721	242	8.9	699	25.7

Special consideration may properly be given to the facts as to the working hours of women in industry, who comprise between 10 and 15 per cent. of the seven odd million wage-earners in the country. State laws have been rather regardful as to the need of limiting the working hours of women and children on the ground that these are a special class of the population whose welfare is too closely bound up with the general welfare to be

left unprotected. While courts have held that laws limiting the hours of adult wage-earners in ordinary occupations and unattended by special dangers to health are unconstitutional, they have not failed to support such legislation in the interest of women and children.

One of the earliest industries women and children entered was the cotton industry, and here, too, laws regulating their hours of employment were first introduced. Even as recently as 1908, however, some very undesirable conditions were disclosed by an investigation of the Federal Bureau of Labor Statistics.[3] Long hours for their women employees, that is, 55 to 60 a week, were characteristic of such industries as metal and paper-box manufacture, canning and preserving, cigar-box manufacture, manufacture of needles and pins, screws, nuts and bolts, confectionery and cracker industries, manufacture of tobacco and snuff, stamped enamel ware, pottery, and laundries, the last named more particularly. Shorter hours (*i.e.*, 50 or under a week) of labor prevailed for women and child wage-earners in the textile industries and ready-made clothing manufacture. In stores, holiday work was found decidedly frequent and arduous, running to dangerous limits in the absence of restrictive laws.

Without going into extended details, the following statement may serve to show the net results as to hours of labor of women wage-earners in certain cities engaged in the men's ready-made clothing industry.[4]

[3] Report on condition of women and child wage-earners in the United States; Washington, 1910-1913, 19 vols.

[4] Op. cit., Vol. II., p. 107.

Cities	Number affected		Average hours per week for women	
	16 years and over	Under 16 years	16 years and over	Under 16 years
Chicago	3,803	317	48.4	45.3
Rochester	1,367	32	49.2	44.3
New York	2,712	39	49.9	54.4
Philadelphia	1,049	88	47.4	50.6
Baltimore	1,397	128	45.8	40.4

In the metal trades, according to the authority of the Federal Bureau of Labor Statistics,[5] in 233 establishments employing in 1908 22,745 women over 16 years of age, 33 per cent. worked less than 55 hours a week; 56 per cent. worked 55 hours and under 60, and 11 per cent. worked 60 hours a week. As for children under 16 years of age, 29 per cent. worked under 55 hours a week, 39 per cent., 55 hours and under 60, and 32 per cent. worked 60 hours a week. A larger proportion of children under 16 years of age worked 60 hours a week than of women above that age.

Since this general investigation, however, was made, there has undoubtedly been an improvement in conditions of the kind noted. Minimum wage commissions and other organizations have long interested themselves in the problem. Special administrative measures provided through liberalizing legislation have assumed active regulation of the employment of women looking toward better wages and shorter hours of work; more particularly is this true as regards women and girls in stores.

[5] Op. Cit., Vol. V, p. 28.

INDUSTRIAL ACCIDENTS

The fact that workmen's compensation laws are now in effect in 31 States and in Alaska and Hawaii is ample evidence of public recognition of the industrial accident problem in the United States. The rapid growth of the "safety first" movement justifies the belief that employers as well as the public have realized the economic importance of preventing the waste of human life and efficiency which results from accidents in industrial establishments. Already the industrial accident hazard is being considerably reduced by the installation of safety devices, by gradually eliminating risks which were once thought to be necessary, but which now are seen to be avoidable, and by educational measures designed to make the individual more careful and intelligent in his work in occupations where there is an element of danger. In this respect, working conditions have been much improved during the last few years. It is safe to say that the beneficial results are stimulating employers and employees to take an interest in accident prevention which is more than mere obedience to statutory regulations, and that the movement for "safety first" is accelerating.

Extent of Industrial Accidents.—Probably the most trustworthy estimate of the extent of industrial accidents is that made for 1913 by Mr. Frederick L. Hoffman, of the Prudential Life Insurance Company. His estimate is based on statistics from the publications of the U. S. Census, the U. S. Bureau of Mines, various State reports, and the industrial experience of the Prudential Company. "The probable approximate number of fatal industrial

accidents," he says, "among American wage-earners, including both sexes, may be conservatively estimated at 25,000 for the year 1913, and the number of injuries involving a disability of more than four weeks . . . at approximately 700,000." [6] The lack of accurate and comparable statistics relating to industrial accidents renders any estimate of doubtful value; only when the most conservative data are used in making a general estimate, as Mr. Hoffman has done, is the estimate of any possible value in indicating the gravity of the accident hazard as a condition affecting the American workingman. As Mr. Hoffman points out, "At the present time there are no entirely complete and trustworthy industrial accident statistics for even a single important industry in the United States. The most reliable data are those for the iron and steel industry, mining, and railways. For most of the other groups the assumed industrial accident rates are relatively low, and in all probability the actual hazards . . . are somewhat higher than" those upon which he based his estimate. This lack of data is due to the absence of uniform requirements in the various States for the reporting of industrial accidents, to the practise of using the average number of employees as a basis for determining rates, and to the failure to take account of the period during which the employees are employed. As the experience of workmen's compensation laws increases, however, more accurate and complete statistics may be ex-

[6] U. S. Bureau of Labor Statistics: Bulletin 157—Industrial Accident Statistics, by Frederick L. Hoffman, p. 6. In estimating the number of injuries involving a disability of more than four weeks, Mr. Hoffman has used the ratio of Austrian experience as indicated by statistics of fatal and non-fatal industrial accidents in Austria, 1897 to 1911 (*Ibid.*, p. 147).

pected. Already a well-defined effort is being made to secure greater uniformity and accuracy of reports.

Occupational Accident Hazards.—Even such statistics as are now available point very clearly to the fact that in some occupations the danger of accidents is much greater than in others. Altho the data are not accurate enough for exact determinations of occupational hazards, they are sufficiently accurate to indicate that industrial accidents constitute a very much more serious condition of work in certain occupations than in others and that the worker in those occupations is subjected to the danger of injury or death more frequently than the average individual in other walks of life. Metal and coal mining appear to be the most hazardous, with railroad employment, quarrying, and the lumber industry well up the list of dangerous occupations. They are apparently more hazardous than the occupation of soldier in the United States Army, and between two and three times as hazardous as the average for all occupations in which males are employed.[7] The accident mortality statistics of the U. S. Census Bureau, while unsatisfactory for purposes of exact analysis, are sufficiently accurate to present in statistical form those wide differences in the occupational

[7] The following table of estimates was prepared by Mr. Frederick L. Hoffman showing the probable accident rates for some of the typical and representative groups of occupations. Mr. Hoffman presented the table in his study of industrial accident statistics which has already been referred to, with the following note:

"The fatality rates used in this estimate are approximations. They are slightly at variance with the exact rates for certain industries, particularly mining, for the year 1913. For metal mines in 1913 the fatality rate, according to the Bureau of Mines, was 3.54 per 1,000; for coal mines, 3.73; for quarries, 1.72. In the estimate it is assumed that for these industries in particular the approximate rates indicate more accurately the average risk for a period of years, it

hazards from accidents which are already established by observation and in general experience. The table on p. 196 presents the combined statistics for two years for all occupations, and for certain occupations, in the registration area, the occupations being selected (some being non-industrial) for the purpose of indicating comparisons.

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being considered that even the official rates fall short of absolute accuracy and completeness in the absence of a Federal law making the reporting of mine accidents compulsory upon all operators. The estimate was arrived at before Technical Paper 94 of the Bureau of Mines was published."

ESTIMATE OF FATAL INDUSTRIAL ACCIDENTS IN THE UNITED STATES IN 1913, BY INDUSTRY GROUPS

Industry Group *Males*	Number employees *a* of	Fatal industrial accidents *a*	Rate per 1,000
Metal mining	170,000	680	4.00
Coal mining	750,000	2,625	3.50
Fisheries	150,000	450	3.00
Navigation	150,000	450	3.00
Railroad employees	1,750,000	4,200	2.40
Electricians (light and power)	68,000	153	2.25
Navy and Marine Corps	62,000	115	1.85
Quarrying	150,000	255	1.70
Lumber industry	531,000	797	1.50
Soldiers, United States Army	73,000	109	1.49
Building and construction	1,500,000	1,875	1.25
Draymen, teamsters, etc.	686,000	686	1.00
Street railway employees	320,000	320	1.00
Watchme , policemen, firemen	200,000	150	.75
Telephone and telegraph (including linemen)	245,000	123	.50
Agricultural pursuits, including forestry and animal husbandry	12,000,000	4,200	.35
Manufacturing (general)	7,277,000	1,819	.25
All other occupied males	4,678,000	3,508	.75
All occupied males	30,760,000	22,515	.73
All occupied females	7,200,000	540	.075

a Partly estimated.

ACCIDENT MORTALITY, UNITED STATES REGISTRATION AREA, BY AGE GROUPS, IN SPECIFIED OCCUPATIONS, 1908 AND 1909 [8]

Age Group	Per cent. of deaths due to accidents and injuries							
	All occupations	Office workers [a]	Soldiers, sailors and marines (U. S.)	Glassworkers	Iron and steel workers	Textile workers	Miners and quarrymen	Steam railroad employees
15-19	26.4	17.3	17.9	28.6	40.0	24.1	71.8	80.6
20-24	21.6	7.3	16.0	8.0	31.0	13.7	66.2	73.3
25-34	17.9	5.4	17.4	9.9	27.1	10.6	61.7	66.1
35-44	14.0	4.8	10.3	7.7	19.3	10.0	47.2	55.8
45-54	10.1	4.5	7.6	9.4	12.5	6.6	28.3	45.7
55-64	6.3	3.4	....	5.0	6.8	5.3	13.6	29.3
65 and over	3.6	3.6	4.4	3.0	2.5	4.7	6.8	18.3
Total	10.5	5.9	12.9	9.3	16.0	8.8	39.3	52.5

[a] Includes accountants, bookkeepers, clerks, and copyists.

As the foregoing statistics suggest, the mortality from accidents and injuries is much above the average among workers of working age in iron and steel manufacturing, mining and quarrying, and on railroads, and is far greater than among office workers, textile and glass workers, and even United States soldiers, sailors and marines.

The industrial mortality experience of the Prudential Life Insurance Company permits more exact specifications as to occupation, and covers a longer period of time, altho a more selected group of persons, than in the case of the Census mortality data. The following table presents the proportionate mortality of males from accidents in all occupations and in certain specified industrial occupations which show unusually high accident mortality rates:

[8] Compiled from data in "Mortality Statistics," 1908 and 1909, U. S. Census Bureau, and published in U. S. Bureau of Labor Statistics Bulletin 157, *supra cit.*, pp. 23-30.

PROPORTIONATE MORTALITY OF MALES FROM ACCIDENTS, BY OCCUPATIONS AND AGE GROUPS, PRUDENTIAL EXPERIENCE, 1907 TO 1912 [9]

Age Group	Percentage of deaths due to accidents among: Occupied males	Coal miners	Lead and zinc miners	Powder makers	Boiler makers	Car builders and repairers	Iron and steel workers [a]	Electric linemen
15-24	20.7	56.9	60.0	66.7	32.7	56.5	26.5	68.1
25-34	12.8	42.3	18.5	83.3	21.3	34.3	25.9	55.2
35-44	10.2	34.3	12.5	66.7	13.0	14.3	15.8	34.3
45-54	8.9	20.4	28.6	66.7	11.8	12.1	10.2	38.3
55-64	6.4	12.9	14.3	100.0	2.5	20.8	7.9	8.3
65 and over	4.1	5.1	....	....	1.4	15.0	4.9	50.0
Total	9.4	23.2	24.7	72.0	13.1	25.6	15.4	49.6

[a] Miscellaneous workers in iron and steel mills.

Causes of Industrial Accidents.—Fundamentally, it may be said, industrial accidents are due to the failure on the part of industrial management to make provisions against accidents, and keep pace with the development of rapid, ponderous, and intricate machinery and dangerous processes, and to fatigue and strain caused by too long continued work and by monotonous work, and to carelessness on the part of employees. With the realization that accidents are not necessary sacrifices to industry, much of the past indifference is passing away, the danger points in mechanical processes are being sought out, methods of industrial managements are being scrutinized in the light of the newer standard of valuing human life and efficiency, and educational efforts are resulting in a higher valuation of human efficiency and lives. No better indication of this fact is found than the collection and analysis of statistical data relating to the causes of industrial accidents as a necessary means to their prevention.

[9] *Ibid.*, pp. 115, 116, and 117.

Several State reports have afforded an intelligent beginning in the study of the causes of accidents, and large numbers of employers are accumulating data from experience in their own plants. The New York State Department of Labor has published annually statistics of accidents from 1901 to the present. Of the causes of 2,819 fatal industrial accidents occurring during period 1911 to 1914, the percentage of distribution is as follows:

COMPARATIVE PERCENTAGES OF FATAL ACCIDENTS IN FACTORIES, MINES AND QUARRIES, AND BUILDING AND ENGINEERING, IN THE STATE OF NEW YORK, 1911 TO 1914, BY MAIN CAUSES

	Factories	Mines	Building Engineering
Mechanical power	42.3	26.8	31.6
Heat and electricity	23.9	24.7	14.6
Fall of person	18.4	8.2	33.2
Weights and falling objects	7.5	36.1	15.0
Miscellaneous	7.9	4.2	5.6
Number of accidents	1,081	97	1,641

More complete data were obtained for 1914 than for preceding years. The 1914 report [10] showed that of the various causes of non-fatal accidents by far the most significant was power machinery. To this factor were chargeable 26.7 per cent. out of a total of 88,314 non-fatal accidents reported during the year. Of this proportion 18.7 per cent. were chargeable to machines at which the person injured was working, 5.4 per cent. to conveying and hoisting machinery, 2.6 per cent. to transmission power. Next to power machinery as a factor in causing non-fatal accidents are weights and falling objects, which accounted for 24.4 per cent.; hand tools

[10] New York Department of Labor, Special Bulletin, issued under the direction of the Industrial Commission, No. 75; Statistics of industrial accidents, 1914. Prepared by the Bureau of Statistics and Information.

accounted for 10.8 per cent.; fall of person, 9.6 per cent.; heat and electricity, 6.9 per cent.; and vehicles and animals, 2.5 per cent.; while miscellaneous causes—including knocking against objects, stepping upon or striking against nails, handling sharp objects, flying objects, whose source is unknown, poisoning gases, etc.—accounted for 19.1 per cent.

Power machinery was held to be responsible for 50 per cent. or over of the accidents in printing and paper goods, wood manufacturing, furs, leather and rubber goods, and in textiles.[11] High proportions of accidents due to fall of person were shown for chemicals, oils, paints, etc.; paper, clothing, millinery, laundry, etc.; food, liquor, and tobacco; and water, light, and power. This was explained as due to the fact that a number of employees work on wet and slippery floors in many of these industries. A special study was made of 1,571 machinery accidents during the years 1913 and 1914 with a view to ascertaining the relation of the use of guards to the occurrence of accidents. In 34.8 per cent. of the accidents guards were used and in 10.7 per cent. guards were provided but not used; in 34 per cent. a guard was practicable but not provided at the time of the accident, and in only 17 per cent. were guards not practicable. The Department was led to make the following statement:

[11] The highest proportion of accidents due to power machinery were found in the following factory industries:

Printing and paper goods	54.9 per cent.
Wood manufacturing	54.5 per cent.
Furs, leather and rubber goods	54.0 per cent.
Textiles	49.3 per cent.
Clothing, millinery, etc.	44.2 per cent.
Paper	37.0 per cent.

"The two outstanding conclusions to be drawn from the facts as ascertained are these: First, that neither employers nor employees recognize the necessity of utilizing to the fullest extent the known means of guarding machinery to prevent accidents; and, second, that our knowledge of practicable and effective machine guards is still elementary."

The lack of uniformity in methods of reporting causes of industrial accidents in various States prevents comparisons; at the same time the different methods of reporting and presenting statistics permits the viewing of accident causes from different standpoints. For example, the principal causes of 474 fatal accidents occurring in Massachusetts during the year ending June 30, 1913, are classified as follows:

CAUSES OF FATAL ACCIDENTS, UNDER THE MASSACHUSETTS WORKMEN'S COMPENSATION ACT, JULY 1, 1912, TO JUNE 30, 1913 [12]

Cause	Fatal accidents	Cause	Fatal accidents
Railroad equipment	119	Boiler explosions and burns	15
Falls	66	Excavating	14
Vehicles	43	Cranes	11
Hand labor	37	Miscellaneous (unclassified)	11
Elevators	33	Asphyxiation, drowning, etc.	10
Electricity	25	All other causes	70
Street railways	20		
		Total	474

The California Industrial Accident Commission's experience for the year ending June 30, 1915, may be summarized as follows: Of the 678 fatal accidents nearly 22 per cent. were caused by collisions, 20.94 by persons falling, and 20.06 by "dangerous substances"; of 1,292 accidents resulting in permanent injuries, 45 per cent.

[12] First Annual Report of the Massachusetts Industrial Accident Board.

were caused by machinery; of the 60,241 accidents resulting in temporary disability, 28 per cent. were caused by falling objects and 20 per cent. by "dangerous substances." [13]

Probably the most detailed study so far published of special causes of industrial accidents was made by the Wisconsin Industrial Commission and published in 1912. An analysis was made of 5,241 accidents by causes, of which 112, or 2.14 per cent., were fatal. It was found that the principal cause of accidents was collapse, falls, or hit by objects, numbering 1,102, or 21.03 per cent. of the total. The next most important cause was accidents in connection with the loading or unloading of heavy objects, numbering 600, or 11.45 per cent. of the accidents due to all causes. Accidents due to falls of all kinds numbered 684, or 13.06 per cent. of the aggregate. These three groups of causes, therefore, accounted for 2,386 accidents, or 45.53 per cent. of the aggregate, for the year ending June 30, 1912.

Of the accidents due to falls, it may be noted, 10 per cent. were found to be falls from ladders, 21 per cent. from scaffolds, tramways, trestles, etc., 14 per cent. from wagons, cars and other vehicles, and 28 per cent. by slipping, stumbling, and jumping. Most of these accidents, the Commission concluded, were preventable.[14] The accidents resulting in burns occurred principally in hot-metal-working industries, particularly foundries, where there is danger from sparks and from splashes of

[13] Report of the California Industrial Accident Commission, July 1, 1914, to June 30, 1915.

[14] Industrial Commission of Wisconsin, Shop Bulletin No. 3A.

molten metal.[15] The Commission pointed out that of the 311 accidents reported as resulting in burns, 20 per cent. occurred while metal was being poured into molds; 17 per cent. while molten metal was being carried in hand ladles; 11 per cent. because of stumbling and obstructed passageways; 10 per cent. while ladles were being filled at the cupola. "Metal explosions," said the Commission, "caused 19 accidents; 18 were caused by metal running out of molds, and in 12 cases the ladle was defective and the hot metal broke through. The remaining accidents were due to various other causes: men carrying ladles bumped into each other, spilling the metal; on tapping the cupola the sparks of metal burned men standing near; ladles and crucibles fell from crane hooks and tongs, splashing the contents in all directions; ladle trucks jumped the tracks, tipping over and spilling the metal, etc. In over 70 per cent. of these accidents described above the injured persons had one or both feet seriously burned. Forty-three cases resulted in injured eyes, one of which caused permanent impairment of sight; 19 cases resulted in burns to the legs, and 26 to other parts of the body."

Probably no industry has so many serious accident hazards as coal mining. The statistics for 1912, for example, as presented by the U. S. Bureau of Mines,[16] showed that of all the fatalities in coal mining, 89.79 per cent. occurred underground. Of the total, 41.19 per cent. were caused by falls of roof (coal, rock, etc.), and 7.58

[15] *Ibid.*, Shop Bulletin No. 4.

[16] Coal Mine Accidents in the United States, 1896-1912, U. S. Bureau of Mines.

per cent. additional by falls of coal other than roof coal. The next most important cause of mine accidents was mine cars and locomotives, responsible for 15.34 per cent. of the total, followed by gas explosions and burning gas, accountable for 6.95 per cent. Coal-dust explosions during the year accounted for only 1.27 per cent. of the accidents from all causes, and explosions of coal dust and gas combined, but exclusive of coal-dust explosions separately considered, account for 4.53 per cent. "Probably no industry," as Mr. Hoffman points out, "is so subject to exceptional hazards as coal mining unless it be the manufacture of explosives, with regard to which trustworthy American data are not available at the present time." [17]

Nature of Injuries.—What appear to be representative statistics of the character of injuries resulting from industrial accidents indicate that the majority of injuries occurring in factories and in building are lacerations, cuts and bruises. In factories between 5 and 10 per cent. of injuries are burns, nearly 5 per cent. are sprains and dislocations, and an even smaller proportion are fractures. This distribution of injuries according to their character in a typical manufacturing state is shown by the statistics collected by the New York State Department of Labor for the period April, 1911, to March, 1913. The same statistics indicate that complete severance or loss of a member occurred in 3.1 per cent. of the accidents in manufacturing industries, and that death occurred in less than one-half of 1 per cent. Fatal ac-

[17] U. S. Bureau of Labor Statistics Bulletin 157. *Sup. cit.*, p. 106.

cidents were most frequent in building and engineering and in mining and quarrying. The New York experience is summarized in the following table:

NATURE OF INJURIES RESULTING FROM INDUSTRIAL ACCIDENTS IN THE STATE OF NEW YORK, APRIL, 1911, TO MARCH, 1913 [18]

Nature of Injury	Per cent. of total injuries in *a*			
	Factories	Building and engineering	Mining and quarrying	All industries
Lacerations, cuts, and bruises	68.7	64.1	66.7	67.4
Burns	7.9	3.2	2.4	6.5
Sprains or dislocations	4.1	5.0	4.0	4.4
Fractures	2.5	3.9	6.1	2.9
Suffocation, effect of heat, gas, etc.	.2	.5	.4	.3
Multiple or other injuries	16.6	23.3	20.4	18.5
Total	100.0	100.0	100.0	100.0
Fatalities (included above)	.4	1.5	2.4	.7
Complete severance or loss of member or part	3.1	1.0	1.8	2.5

a The total accidents occurring during the period, classified by industrial groups, were as follows: Factories 102,683; Building and engineering 41,032; Mining and quarrying 1,667; total 145,382.

The character of injuries resulting from industrial accidents is perhaps better indicated in the following table which has been compiled from the New York State reports by Mr. Hoffman. It presents an analysis, according to the part of the body injured, of the New York experience already referred to, and is given on p. 205.

Some interesting comparisons are suggested by these statistics. For example, it appears that in manufacturing industries 10 per cent. of the accidents were injuries to the eyes, against 7.7 per cent. in mining and quarrying and 3.2 per cent. in building and engineer-

[18] Compiled from Bulletins 48 to 55, Department of Labor, State of New York, published in compiled form in U. S. Bureau of Labor Statistics Bulletin 157, *sup. cit.*, p. 43.

INDUSTRIAL ACCIDENTS IN THE STATE OF NEW YORK, BY PARTS OF THE BODY INJURED, APRIL, 1911, TO MARCH, 1913 [19]

Part Injured	Accidents in Manufacturing		Building and engineering		Mining and quarrying	
	Number	Per cent.	Number	Per cent.	Number	Per cent.
Eyes	10,312	10.0	1,331	3.2	128	7.7
Other head injuries	8,548	8.3	7,305	17.8	194	11.6
Trunk or internal	5,402	5.3	2,602	6.3	91	5.5
Arms or hands	17,197	16.8	6,050	14.8	197	11.8
Fingers	38,400	37.4	8,259	20.1	451	27.0
Legs or feet	18,162	17.7	11,032	26.9	435	26.1
Multiple or other	4,662	4.5	4,453	10.9	171	10.3
Total	102,683	100.0	41,032	100.0	1,667	100.0

ing. Nearly 40 per cent. of the accidents in manufacturing establishments were injuries to fingers, against 20 per cent. in building and engineering, while less than 20 per cent. of accidents in manufacturing establishments were injuries to legs and feet, against over 25 per cent. in the two other groups of industries. Because of the relative unimportance of mining in New York State, the statistics are probably not thoroughly representative of that industry, and reference may be made to the statistics collected by the U. S. Bureau of Mines. These data are not given in as much detail, from the standpoint of the nature of the injury, as the New York statistics, but they will suffice to indicate the general character of the accidents occurring in metal mines and in quarries in the United States as a whole. They are summarized in the following tabulation:

[19] *Ibid.*, p. 44.

NUMBER AND PER CENT. OF MEN KILLED AND INJURED IN AND ABOUT METAL (AND MISCELLANEOUS MINERAL) MINES AND QUARRIES IN THE UNITED STATES, AND RATES PER 10,000 EMPLOYED, BY GENERAL CHARACTER OF INJURY, 1912 [20]

	Mines	Quarries
Total killed and injured	31,395	7,922
Fatally injured:		
Number	661	183
Per cent. of total	2.2	2.3
Rate per 10,000 employed	39.06	17.22
Seriously injured:		
Number	4,502	1,092
Per cent. of total	14.3	13.8
Rate per 10,000 employed	266.08	102.75
Slightly injured:		
Number	26,232	6,647
Per cent. of total	83.5	83.9
Rate per 10,000 employed	1,550.36	625.45

The foregoing statistics will be understood more clearly if definitions of terms are given. According to the bulletins from which the statistics are taken, a "serious" injury was considered to be one disabling a man from work for "20 days or more," and included broken arms and legs, the loss of an eye or eyes, and severe cuts and bruises; a "slight" injury was considered to be one involving loss of working time of "not less than 1 day nor more than 20 days" and included cuts, sprains, mashed fingers, bruises, slight burns, effect of powder smoke, etc.[21]

"Slight" injuries, however, may become "serious" injuries by becoming infected, as pointed out by the U. S. Bureau of Mines in presenting the foregoing statistics.

[20] Compiled from Metal Mine and Quarry Accidents in the United States, 1912, U. S. Bureau of Mines. The rates per 10,000 employed were computed by Frederick L. Hoffman and published in U. S. Bureau of Labor Statistics Bulletin 157, *sup. cit.*, pp. 109-111.

[21] *Ibid.*, p. 108, quoting from Technical Paper 40, Bureau of Mines, 1913.

With respect to this point, it is of interest to note the data obtained by the Wisconsin Industrial Commission in the course of a study of special causes of industrial accidents.[22] As summarized in the Bureau of Labor Statistics bulletin on industrial accidents,[23] it was found that "a large number of minor accidents result in infection, which often can be prevented only by the earliest possible qualified treatment." This summary of the Wisconsin report continues:

"Of the accidents reported to the Commission during the two years ending with September 1, 1913, 721, or 4.8 per cent., resulted in infection of the injured member. The accidents themselves were, with few exceptions, trivial, and would have resulted in but a very few days' disability each if properly treated. On account of neglect or indifference, over 12,500 working days were lost, or an average of 17 days per case. In five cases the injuries terminated fatally, and in four others the injured member had to be amputated to save the patient's life. The Commission estimates that the compensation and medical aid in the 721 cases referred to under the present workmen's compensation law of Wisconsin would have cost employers about $40,000. They refer to the experience of several large Wisconsin manufacturing companies in preventing infection by the proper handling of all accidents, no matter how slight, and the consequent practical elimination of serious results."

Economic Significance of Industrial Accidents.—The

[22] Industrial Commission of Wisconsin, Shop Bulletin No. 5.
[23] U. S. Bureau of Labor Statistics Bulletin 157, p. 96.

serious consequences to a wage-earner's family resulting from the removal by fatal accident or the maiming and incapacitating of its breadwinner hardly need to be pointed out. They are suggested by the statistics showing accident mortality rates according to age which have already been quoted, the large number of workers killed by accidents between the ages of 25 and 45 indicating the frequency with which fatal accidents occur in that period in which the ordinary worker has a family dependent upon him for support. Statistics published by the Bureau of Labor Statistics of Illinois emphasize the economic importance of industrial accidents because they show the conjugal condition of injured persons. The following table affords statistics for 3,283 persons fatally injured and 26,303 persons who were victims of non-fatal accidents:

CONJUGAL CONDITIONS AS FAR AS REPORTED OF PERSONS KILLED OR INJURED IN ILLINOIS INDUSTRIES, JULY 1, 1907, TO DECEMBER 31, 1912 [24]

Industry	Fatal accidents			Non-fatal accidents		
	Persons killed	Married persons killed	Per cent. married	Persons injured	Injuries to married persons	Per cent. married
Coal mining	1,112	665	59.8	4,225	2,357	55.0
Contracting	81	50	61.7	623	377	60.5
Manufacturing	540	349	64.6	13,221	7,470	56.5
Railroading:						
Elevated	22	15	68.2	5	2	40.0
Interurban	40	21	52.5	116	72	62.1
Steam	1,301	846	65.0	5,581	3,516	63.0
Street	44	28	63.6	304	187	61.5
Underground	10	4	40.0	106	62	58.5
Stone quarrying	19	10	52.6	127	75	59.1
Miscellaneous	114	60	52.6	1,995	1,102	55.2
Total	3,283	2,048	62.4	26,303	15,220	57.8

[24] *Ibid.*, p. 60.

The Illinois statistics for the five years ending with 1912 showed that the 3,084 persons killed in industrial accidents had 4,872 children and dependents, and that the 25,696 injured workers had 28,626 children and dependents. This, as has been remarked, "is unquestionably a considerable understatement of the facts." The economic significance of the industrial accident problem is also suggested by statistics showing the loss of time suffered by injured workers. Such data are afforded by several of the more intelligently prepared state reports. For example, two recent reports of the Ohio Industrial Commission [25] permit the following tabulation, the data for coal mining being given separately for purposes of comparison:

DURATION OF DISABILITY IN INJURIES RECEIVED IN COAL MINES, AND IN ALL INDUSTRIES, IN OHIO, IN 1914

Classified Duration	Coal mining		All industries	
	Number	Per cent.	Number	Per cent.
Under 1 week	482	24.7	38.666	54.2
1 and under 2 weeks	318	16.3	11,267	15.8
2 and under 3 weeks	308	15.8	7,699	10.8
3 and under 4 weeks	244	12.5	4,406	6.2
4 and under 13 weeks	510	26.1	8,183	11.4
13 weeks and over	90	4.6	1,122	1.6
Not reported	...	....	44	*a*
Total	1,952	100.0	71,387	100.0

a Less than one-tenth of 1 per cent.

From the foregoing table it appears that 45.8 per cent. of the accidents in all industries resulted in disability lasting one week or longer, 30 per cent. in disability lasting two weeks or longer, and 13 per cent. in disability lasting four weeks or longer. The severity of accidents in coal

[25] Industrial Commission of Ohio, Department of Investigation and Statistics, Reports Nos. 18 and 19, 1916 (for 1914), Fred C. Croxton, Chief Statistician.

mines is indicated to be considerably greater than that in other industries, since 30.7 per cent. of the coal mine accidents resulted in disability lasting four weeks or longer. The experience of the Massachusetts Industrial Accident Board affords similar data for a large Eastern manufacturing State. Its experience for the year ending June 30, 1913, showed that of the 89,694 non-fatal accidents, 68,586, or 76.5 per cent., were reported as injuries which incapacitated the employee for two weeks or less. About 41 per cent of the non-fatal accidents incapacitated the employee for only one day. The statistics for 1913 are presented below:

DURATION OF DISABILITY CAUSED BY NON-FATAL INJURIES ACCORDING TO EXPERIENCE UNDER THE WORKMEN'S COMPENSATION LAW OF MASSACHUSETTS FOR YEAR ENDING JUNE 30, 1913 [26]

Duration of Disability	Persons injured	
	Number	Per cent.
2 weeks and under *a*	68,586	76.5
2 to 4 weeks	10,568	11.8
4 to 8 weeks	6,638	7.4
8 to 13 weeks	2,355	2.6
13 to 26 weeks	1,275	1.4
Over 26 weeks	272	.3
Total	89,694	100.0

a Of the accidents causing disability of less than two weeks, 36,901, or 41 per cent. of the non-fatal accidents, caused a disability duration of one day or less.

Translated into terms of average days lost per injured person, the above figures indicate that the average employee who was incapacitated by industrial accident lost 12.9 days. Stated in another form, the statistics showed that 3,855 wage-workers in Massachusetts were con-

[26] First annual report of the Massachusetts Industrial Accident Board. The data from this source are summarized in U. S. Bureau of Labor Bulletin 157, *sup. cit.*, pp. 48-57.

stantly incapacitated on account of industrial accidents during the year ending June 30, 1913. The Massachusetts Accident Board estimated that the wage loss occasioned by industrial accidents in 1913 was $2,965,225, or about $10,000 for each working day. When the fact that the predominating industries in Massachusetts are textiles and boots and shoes, both of which are comparatively free from industrial accidents, is taken into consideration, it is quite apparent that these statistics are hardly typical for the principal industrial States.

The Massachusetts statistics are especially illuminating, however, because they furnish data on the wages of those who were fatally injured. These wage statistics plainly showed that the large majority of fatally injured workers were persons earning wages barely sufficient for maintaining families. Loss of wages meant serious consequences to their dependents unless the latter were provided with other means of support. According to the statistics of classified weekly wages of the 474 persons fatally injured during the year ending June 30, 1913, 5.7 per cent. earned $8 or less, 60.8 per cent. earned from $8 to $15, 21.5 per cent. earned from $15 to $20, and only 12 per cent. earned over $20. Similar data are afforded by the California Industrial Accident Commission for fatally injured persons. Of 678 fatally injured persons during the year ending June 30, 1915, about 62 per cent. were receiving between $10 and $19 per week, and over 80 per cent. were receiving $30 or less a week. Nearly 40 per cent. were married men. Of the 1,292 permanently injured persons during this period, more than 55 per cent.

were receiving between $10 and $19 per week, and about 50 per cent. were married men. The loss of time occasioned by the 60,241 accidents which resulted in only temporary disability amounted to 695,394 days, or an average for all cases where disability lasted through the day of 16.8 days, representing a money loss in wages of about $2,000,000. It is interesting to note that against this wage loss is set the sum of only $605,743 which employers and insurance companies paid in compensation, or a total of $1,220,449, if medical benefits be included.

American statistics of accident mortality in industrial occupations are very similar, so far as occupational differences are concerned, to European statistics for similar occupations. There is no longer any doubt that the danger from maiming or fatal accidents is a very real condition of labor and a very marked characteristic of modern industry. In certain important occupations it is a fact which the wage-earner and his family must face, with what solace fatalistic creeds may afford them, until accident prevention becomes thoroughly effective. Financial compensation is a poor recompense for disabling injury or for the family's loss of a breadwinner; it merely affords a pitiful relief. Its greatest value lies in the incentive which some employers apparently need to realize the uneconomical practise of disregarding the value of human efficiency and life.

HAZARDS FROM HARMFUL SUBSTANCES

Occupational health hazards resulting from work in the so-called "harmful substances" have been shown in several

important Federal and State investigations, as well as in medical literature, to be serious hazards to the workers in those conditions. These substances have been classified as metals, dusts, gases, vapors and fumes. It is important to point out, however, that while authoritative investigations have shown that nearly every line of modern manufacture exposes the worker to the dangers of industrial poisoning, the number of workers who suffer from diseases caused by harmful substances is relatively small when compared with workers who are incapacitated or killed by industrial accidents or by insanitary conditions in places of work, by insanitary conditions of living, or by earnings inadequate to provide proper food and healthful home and community environment. It is quite probable that, with the means to build up the worker's resistence to disease-causing conditions in the substances in which he works, the hazard arising from such conditions would be greatly lessened. It is also quite certain that practicable safeguards can be made against deleterious results from harmful substances. The "occupational disease" hazard is so intricately involved in other conditions that it is difficult to ascribe to each set of conditions its relative potency in bringing about harmful effects upon the worker.

So much emphasis has been given to industrial poisons in recent literature that it is impracticable here to present a summary of what has been described.[27] Phosphorus, lead, mercury, analin, and arsenic poisonings are among the more familiar examples. The New York Depart-

[27] See Chapter VIII., The Wage-Earner's Health.

ment of Labor, during the two years ending August, 1913, had 284 cases of industrial diseases reported to it. Of this number 239, or nearly 85 per cent., were caused by lead poisoning; 8, or about 3 per cent., were caused by brass, mercury, phosphorus, and wood alcohol poisoning; 5, or about 2 per cent., contracted anthrax; 30, or about 10 per cent., were subjected to caisson disease when working in shafts and tunnels. Of the lead poisonings about one-fourth occurred among workers in the manufacture of electric batteries and in the painting of vehicles, and nearly a half in house painting. This brief reference from two years' experience in a single State affords an idea of the character and of the extent of industrial poisoning. The recent investigation by the United States Bureau of Mines, undertaken in cooperation with the Federal Public Health Service, of silicosis, or "miner's consumption," in metal mines in the Joplin, Missouri, district, furnishes an illuminating example of the hazards from rock dust as well as other harmful conditions of work in that industry. "Miner's consumption," declared the report of this investigation, is a matter "of deep public concern" for the reason "that the inhalation of sharp particles of dust injures the mucous membrane of the lungs and in this way lessens the resistence of the lungs to pathologic germs, especially the bacilli of pulmonary tuberculosis." The report concluded that the death rate from pulmonary diseases is unusually high among the Joplin miners; that the prime factor is the rock dust in the mines, tho poor housing, exposure, alcoholism, the use of common drinking receptacles and overwork are

contributory causes; that the rock dust is harmful because the miner is exposed to it practically during his entire shift, and because of the peculiarly sharp character of the particles; that the rock dust can be abated almost completely by observing certain precautions; and that "there are certain abuses connected with the piece system of work that demand attention and correction as far as practicable."

The tuberculosis rate has been found to be considerably higher than the average for all occupations among glass and stone workers and among grinders and polishers in metal working plants, and suggests the harmful effect of working in certain substances.[28] In brass foundries, for example, the dense clouds of deflagrated zinc arising from the molten metal have injurious effects. In glass factories, it has been observed that the glass dust is a serious danger to health. For purpose of illustration, a description afforded by the Federal Woman and Child Wage-Earners' report, as condensed in the Bureau of Labor Statistics recent summary, may be referred to.[29] In the glass bottle factories investigated, the glass dust comes partly from the glass on the floor, says the summary, but far more from what is known as "blow-over," the name given to those gossamer-like flakes of filmy glass that are usually found floating in the air of a bottle house. When a bottle has been blown into form in a mold it is necessary to detach the blowpipe without injuring the neck of the bottle. To do this the glass be-

[28] See statistics of mortality according to occupation in Chapter VIII., The Wage-Earner's Health.

[29] Bulletin of the U. S. Bureau of Labor Statistics, No. 175, p. 121.

tween the top of the mold and the butt of the blowpipe is blown into a thin bubble which can be easily broken. This can be done so as to cause practically no blow-over, but it is "quicker and easier to blow hard enough to inflate and burst this portion of the glass by internal air pressure. When this is done the bubble explodes with a popping noise and its walls fly into the air, often into the mold-boy's face, and the light particles of glass float in the air currents of the room."

The degree to which blow-over is present differs greatly with the speed and carefulness of the blowers. It is by no means an inevitable feature; in some factories such precautions were taken that it was a negligible evil, while in others it constituted a serious menace. The report says:

"In some factories at times the air is so full of this floating glass that the hair is whitened by merely passing through the room. It sticks to the perspiration on the faces and arms of the boys and men, and becomes a source of considerable irritation. Getting into the eyes, it becomes especially troublesome." [30]

This dust is said to be the cause of much temporary skin and eye irritation; just how serious these effects are has not been determined. It is a truism, however, that the inhalation of irritating dust predisposes to diseases of the respiratory passages, and it is known that its presence in considerable quantities in workrooms is always accompanied by a high death rate, especially from consumption.[31]

[30] Woman and Child Wage-Earners' Report, Vol. III., Glass Industry, p. 66.
[31] *Ibid.*, p. 135.

INSANITARY CONDITIONS IN PLACES OF WORK

The wage-worker is frequently subjected to hazards other than those of industrial accidents or of working in "harmful substances"; unhealthful conditions, commonly described as insanitary,[32] also constitute a menace to his health. While there has been undoubted improvement in the sanitary conditions in factories and other places of work in recent years, the average American industrial establishment is by no means free from conditions which, according to present standards and knowledge, are distinctly insanitary. It is safe to say that in nearly every plant where such conditions exist, comparatively little outlay of money and a little intelligent effort could greatly improve and, in many cases, remove them. The results in increased efficiency have often been seen where such outlay and effort have been made.

The regular reports of factory inspectors in many States and of special investigations and surveys of sanitary conditions in manufacturing establishments furnish a large amount of data on this condition of labor. It is obviously impossible to construct any general statement of what the sanitary status of American industrial establishments is, or to summarize the literature on the subject in a concise manner. A brief mention of some of the more important insanitary conditions, with a few illustrations, must suffice to suggest what these conditions are and how far they are prevalent.

Among the principal insanitary conditions which have

[32] Harmful substances, as well as long hours, properly come within the definition of "insanitary" conditions, but for purposes of clearness they have been discust under separate headings in this chapter.

been noted are those due to bad ventilation, such as excessive heat or cold; overcrowding; excessive or defective light or lack of light, and excessive noise and rhythm from machinery, etc., which cause strains of nerves and special senses; conditions which cause improper postures of the worker; uncleanly conditions, which are not only distasteful to the worker, but which are also favorable to the spread of infectious diseases.

Recent reports indicate that a very large proportion of the industrial establishments in this country are not free from unhygienic conditions. The Federal report on woman and child wage-earners stated that in cotton mills,[33] for example, the light in the weaving-rooms only was good. Ventilation was apt to be poor. The temperature of the mills was often found to be high, and in certain rooms the humidity was excessive. In the Southern mills over 80 per cent. of the toilets were unclean, and in over 50 per cent., in both sections, there was no reasonable privacy of approach. Wash rooms and dressing rooms were rare. This survey was made in 1907-1908, and it is proper to state that in many mills marked improvements have been made. The more recent report, however, of the New York Factory Investigating Commission of its extensive examination of establishments in the State of New York found "deplorable" conditions in a large number of factories and that satisfactory conditions were found in a relatively small proportion of the

[33] See Summary of the Report on Condition of Woman and Child Wage-Earners in the United States (Bulletin 175 of the U. S. Bureau of Labor Statistics, p. 66), based on Vol. I. of the report.

establishments.[34] "In many of the industrial establishments in the state," the report says, "the conditions of work have been found to be excellent, the management giving proper regard to the health and comfort of the employees, and the organization being model in all respects. Everything in reason has been done for the workers, and a high standard of efficiency has been maintained." . . .

"Unfortunately, such model establishments and such enlightened employers are in the minority, as by far the greater number of employers have not yet awakened to the importance of improving conditions of labor. Investigations in a great number of factories throughout the State have revealed much that is deplorable. In the production of commodities, great economy must needs be practised as a matter of course. But there is a tendency on the part of many employers to economize not only in matters of legitimate expense, but also in space, light, air and certain other safeguards to the health and lives of the workers. Such false economy inevitably injures the employer and imperils the health and lives of his employees. Workers exercise but little control, either individually or collectively, over conditions of labor in factories. The employer, alone, arranges all working conditions and regulates them according to his will."

[34] New York Factory Investigating Commission; Second Report, 1913, Vol. II., Report of Dr. George M. Price, Director of Investigation, p. 416. See Chapter VIII., The Wage-Earner's Health.

PROFIT-SHARING AND BONUS PLANS

One of the oldest methods by which employers have endeavored to secure the interest of their employees in their establishments has been profit-sharing. As there is confusion as to the exact meaning of the term, it may be well to define it. The International Cooperative Congress, held in Paris, France, 1889, defined profit-sharing as "an agreement freely entered into, by which the employees receive a share, fixt in advance, of the profit." This is a very close definition, and it is probable that there are very few systems in this country which would wholly comply with the definition. The essential feature, however, of any profit-sharing scheme is that the amount to be distributed shall depend upon the net profits of the enterprise or upon the amount of dividends paid to stockholders, and that the proportion of profit to be distributed shall be definitely determined in advance.

The Federal Bureau of Labor Statistics, however, in a recent study [35] limits the principle of true profit-sharing to those firms in which the benefits of the plan are extended to at least one-third of the total employed, including employees in occupations other than executive in character, and under which the methods of determining individual shares are not known in a general way to the participating employee. It then classifies as limited profit-sharing those plans in which the benefits are limited to less than one-third of the total employed, excluding employees other than executive or clerical.

[35] Bulletin No. 208, "Profit-Sharing in the United States," by Boris Emmet.

As defined above, in the narrow sense profit-sharing was found by the Bureau of Labor Statistics in the investigation referred to in practise in the United States by approximately sixty firms, as follows:

The number of profit-sharing plans in which less than one-third of the employees of any firm are included probably exceeds the number of establishments classified as having profit-sharing plans in the true sense of that term; the number of bonus plans is probably even larger than the number of profit-sharing plans.

It is probably fairly well accepted tho not established definitely by court decisions [36] that employees under any one of these plans have no legal claims upon the profits to be made available for distribution. The bulletin of the Bureau of Labor Statistics in question refers to several cases in the justice courts of the State of Michigan in which the defendants contend that profit-sharing moneys are mere gratuities from the employer.

The amount of the divisible profits is distributed either as a specific proportion of the net profits, or of the dividends to stockholders, or as a rate of dividend on the earnings of the employees. This rate is usually less than the rate of dividend paid on capital to the stockholders. Eligibility for participation by the employees is generally dependent upon length of service with the enterprise. This minimum of continuous service varies from three months to three years; but the minimum required in more

[36] The New York Court of Appeals, which is the highest court in that State, has denied the right of an employee to the amount of an accrued pension upon dismissal before reaching the specified age and service limit. (McNevin *v.* Solvay Process Company, 32 App. Div., 610; affirming 166 N. Y., 530).

than one-half of the plans investigated by the Bureau of Labor Statistics was one year or less.

In all of the plans the employer retains absolute right of hiring and discharging employees, and discharge and leaving employment act automatically to forfeit the share of profits of the employee. The employer retains the amount forfeited. The profits are generally paid in cash.

According to the investigation of the Bureau of Labor Statistics already referred to, the following facts were developed as to the profit-sharing plans investigated: Of the 56 plans, 11 were established in 1915; 7 in 1914; 4 in each of the years 1901, 1906, 1909, 1911, 1912, and 1913; 3 in 1910; 2 in each of the years 1886 and 1899; and 1 in each of the years 1887, 1889, 1900, 1902, 1904 and 1907. Over six-tenths were located in Massachusetts, New York, and Ohio, 13 being located in Massachusetts. Forty-five per cent., or 25, were in manufacturing establishments; 21 per cent., or 12, in mercantile institutions; 14 per cent., or 8, in banking houses, and 7 per cent., or 4, in public utilities. As to size, of the 38 establishments reporting the number of employees, 37 per cent., or the largest proportion, were classed as establishments having 100 and under 300 employees; and 34 per cent. employed under 100 employees.

Under almost one-third of the plans the profit-sharing dividend of the regular earnings of the participating employees was less than 6 per cent.; under slightly over one-third of the plans the dividend varied from 6 to under 10 per cent.; under the remaining third of the establishments the dividend amounted to 10 per cent. and over. As all

employees do not participate in the plans, the cost to the employer in proportion to the earnings would be generally less than indicated by the rate of dividend on earnings of participating employees.

When applied in an establishment the plans appeared to reach a comparatively large proportion of employees other than the higher executive, clerical and sales occupations, 83 per cent. of the employees being in occupations other than these latter.

Limited profit-sharing plans, that is, plans under which less than one-third of the employees of an establishment are eligible for benefits, were studied by the Bureau. Those benefited are usually the higher paid employees in charge of the operation of the business, the executive, administrative, and supervisory employees. The determination of the profit-sharing fund, conditions of eligibility, basis for computing individual shares, conditions of forfeiture, etc., are quite similar to those in profit-sharing plans more strictly defined.

None of these plans, the Bureau found, go back prior to 1900; the establishments were found most generally located in the North Atlantic States; they were most common in manufacturing enterprises, and more generally among the smaller establishments than the larger ones. Under these limited plans the benefits accruing to the participants are usually larger than under the true profit-sharing plan, the relative proportion of the profits available for distribution being considerably larger and the number of employees benefited considerably smaller than under the other plans described. It appears that 74 per

cent. of the employees participating in the limited profit-sharing plans belong to the executive, clerical and sales occupations, only 26 per cent. were in that group which includes the mechanical occupations.

Closely related to profit-sharing are bonus plans under which the divisible fund depends upon any or one of several factors: (1) Price for which the commodity manufactured is disposed of (sliding scale wage); (2) gross receipts or gross profits; (3) probable profits of the bonus; (4) earnings and length of service; (5) length of service and thrift as shown by ownership of stock in the company or maintenance of a savings account by the participant; (6) savings of prospective participants as shown by a stock subscription or ownership or a savings account; and (7) amount of savings collectively affected for the enterprise.

The benefits accruing from such bonuses are in the nature of periodic wage increases. The benefit is usually in the form of a return to the employee of a percentage on earnings, the percentage varying with the length of service. The bonus is in the nature of a gift, and bears no relation to the profits realized but varies with the prosperity of the business as a rule. In the Ford automobile plants the bonus is distributed in the form of a guaranteed minimum wage per day, rated according to skill, the gross amount dependent upon the profits estimated to accrue within the year, one-half of such profits being distributed in the form of the minimum wage. Frequently the condition for a certain length of service is coupled with a compulsion to subscribe for a specified amount of

stock of the company; in other plans it depends upon the skill of the employee as shown by his rate of wages, while in others the bonus depends upon the nature of the work performed by the employee and the merit of the service rendered in the estimation of the employer. In stock subscription plans the additional remuneration depends upon the amount of subscriptions per stock, and in the so-called cash bonus plan based upon length of service, it depends upon the earnings of the employee in relation to his length of service. There are also plans in which the dividend on earnings of the employees is dependent upon the savings collectively effected in a department over and above a standard fixt in advance.

Summing up the results of a special study for the National Civic Federation, it was stated that of the 200 plans that were analyzed a great many "have been abandoned as acknowledged failures." The relatively large proportion of "dubious" results, however, ought not to lead one to the conclusion that profit-sharing is "worthless," because other plans of the same kind, from the standpoint of special local conditions, or by contrast with some previous order of things, "no doubt show a net improvement in the welfare of the employees affected and the morale of the plants." [37]

The views of a considerable number of labor leaders on the question of profit-sharing were sought and obtained. All of these informants, without exception, voiced their emphatic opposition to the principle as well as to its

[37] Profit-Sharing by American Employers, New York City (1916), p. 6. Reviewed in Monthly Review of the Bureau of Labor Statistics, Washington, 1916, Vol. II., No. 6 (June), 46-48.

application, on the grounds that such plans invariably result in discouraging collective bargaining, have a tendency to hinder the development of labor organizations, and in their actual application are confined to employees of higher grades, excluding from their benefits the rank and file of the workers. The latter assertion, the report states, "is borne out by the statistics of many of these experiments." [38]

With reference to the attitude of employers the report states that a large number of the companies whose plans were analyzed in the body of the report, stated that they "considered profit-sharing a success" and that others "presumably hold the same view from the fact that they continue the experiments from year to year." Employers having profit-sharing plans in operation think that the application of the principle "promotes more continuous service, reduces the cost of production, secures more regular attendance at work, builds up confidence, and creates a spirit of cooperation." [39]

But while most of the objections to profit-sharing come from the side of organized labor, some employers who have had experience on the subject "are by no means a unit as to its practical value." Some of these employers express disappointment that their efforts were not appreciated by their employees, that the latter "seemed to prefer their total earnings in fixt wages, that they were suspicious of their employers' motives, that they insisted upon joining unions and presenting demands in spite of

[38] *Idem.*, pp. 12, 13.

[39] *Idem.*, p. 10.

the companies' effort to give them a share in the extra gains of the business." [40]

Employers' Welfare Work

The institution of welfare work, special methods for the payment of wages, such as bonus and premium systems, and sharing of profits with the employees by the enterprise, is a recognition by employers that careful and tactful consideration must be given to the wage-earner as a human being to secure his loyalty and attachment to the work of his employer. The immediate ends sought by employers are various; among them may be mentioned the desire to secure greater steadiness of employment by preventing the waste of frequent hiring and discharging of men; freedom from strikes and lockouts; and discouragement of organization among employees, with the consequent interference of the employees in the management of the enterprise. The general result achieved is thought to be greater production at less cost. Undoubtedly, also, the humanitarian instinct has been very prominent as a motive in the inauguration of various kinds of welfare schemes.

It may be said that organized labor without exception is opposed to welfare work of every kind. It is charged that it leads to paternalism and autocracy on the part of the employers; that the work as a whole is done at the expense of wages, and that it results in suppressing initiative on the part of the employee. Welfare work is declared to be one of the instrumentalities by which the

[40] *Idem.*, p. 11.

progress of industrial democracy is stayed. Welfare work may be defined as provision by the employer for the comfort of the employee, mental and physical, recreation in the interest of his health and hygiene and general well-being over and above what is legally demanded. It consists in improvement of working conditions of the employee above the standard required by law. Most of the welfare work is conducted by employers with the larger labor forces and by those generally engaged in enterprises of a more permanent character. The kind of welfare work carried on naturally differs from the character of the employing force in any instance; it is different for employees in department stores and for miners or railroad hands.

Welfare work takes on a multiplicity of forms. Among the various kinds may be mentioned rest and recreation rooms, and cloak and locker rooms—most common in department stores and large office establishments; also lunch rooms and restaurants; club rooms or houses; emergency or first-aid rooms, bath and wash rooms and hospital arrangements—institutions most common at mines and for the rougher occupations in general; provision of libraries or reading-rooms; gymnasium, and recreation grounds; social gatherings, outings, music and lectures; work among families of employees, such as maintaining kindergartens, playgrounds, clinic or visiting nurse service; amusements, etc.; institution of classes in trade or other education, particularly the organization of classes for the instruction of foreigners in English; institution of benefit associations for the relief of persons

injured by accident or incapacitated by sickness; the establishment of pension funds for the disabled and superannuated; organization of group insurance, encouragement of thrift, and provision of relief from monotonous and fatiguing occupations. Of late there has developed a system of physical examination of employees to ascertain their fitness for any occupation for which they apply; this physical examination is usually conducted from time to time in order to maintain the health of the employee. There has been considerable development in granting of vacation and sick leave; particularly is this true in office and clerical work.

The administration of the welfare work is probably most generally in the hands of the employers, altho many of them carry the work on through a special welfare secretary, a rather recent institution.

In many instances a democratic form of organization is maintained by representation of the employees on managing committees. This is particularly so in the case of the organization of safety work in mines and in the iron and steel industry. Frequently outside agencies cooperate in the organization of the work. The Y. M. C. A. maintains an extended cooperation with the Pennsylvania Railroad Company, the usual Y. M. C. A. equipment—gymnasium, reading-rooms, etc.—being maintained at some of the principal terminals of that road. Frequently the work is carried on in cooperation with social settlement organizations, boards of education, and charitable organizations.

A mere list of all employers in the United States who

are known to conduct welfare work of varying amount would probably fill a small volume of fifty or more pages. Bulletin 123 of the Bureau of Labor Statistics (Employers' Welfare Work, Washington, 1913) describes the welfare work of fifty-one large employers of labor; but it would be quite safe to say a list of from 1,500 to 2,000 concerns could be compiled for the United States of employers engaged in welfare work. Mr. Tollman in his work on social engineering (1909) describes in some detail the welfare work of establishments employing over a million and a half workers. One of the best illustrations of welfare work as conducted by some of the larger employers of labor is afforded by the system which has been put into operation by the United States Steel Corporation.

The United States Steel Corporation maintains at New York a separate Bureau of Safety, Relief, Sanitation and Welfare, organized in 1910.[41] It is in charge of a manager whose entire time is spent on this work. The Bureau acts as a central clearing-house of information for the subsidiary companies of the corporation and as the administrative body for the Committee of Safety and of the Committee on Sanitation, the duty of which is the organization of local committees of safety at the various plants of the corporation. On these committees employees are represented. Their work is educational—the study of efficient safeguards, methods of installation, etc. At its New York office the Bureau maintains a museum

[41] U. S. Steel Corporation, Bureau of Safety, Relief, Sanitation and Welfare. Bulletin No. 4, November, 1913, New York City.

of safety and files pictures of the welfare work of the corporation.

The problem first given attention by the sanitation committee was the purification of the drinking water supply at the different subsidiary companies. An analysis was made of the water and impure sources were abandoned and new supplies obtained. These analyses are now made twice a year and oftener as occasion may require. The common drinking-cup is being replaced with sanitary drinking fountains, 482 such fountains having been installed in 1912. The common or roller towel has gradually been abandoned. Standard specifications are prepared and enforced for various types of sanitary equipment. Garbage and refuse disposal is being systematized at the various mining towns of the H. C. Frick Coke Company and the National Mining Company, subsidiaries of the corporation in the bituminous coal region. Also, at the mining towns bath and change houses are being installed, usually located a short distance from the mouth of the shaft, and provided with showers, lockers, etc.

By some of the companies recreation and club houses have been established. The baseball ground is said to have been one of the potent means of Americanizing the foreign miner. It has been a means of social contact between the scattered mining towns of the bituminous coal and coke region of western Pennsylvania. Also instrumental in the work of Americanization has been the playground.

A number of subsidiary companies are providing res-

taurants at the works for the benefit of their employees. The mill restaurant of the American Sheet and Tin Plate Company, at Gary, Indiana, cost $7,300. The restaurant is not leased, and no rental is charged. Permission to continue business is dependent upon proper conduct of the restaurant, the serving of wholesome food, and the keeping of the premises in a sanitary condition. The price of a regular noonday meal is twenty-five cents.

The H. C. Frick Coke Company offer annually to its employees prizes for the best vegetable and flower garden. In 1913 the company awarded 113 first prizes throughout its different mining towns, 113 second prizes, and 79 third prizes. The value of each vegetable garden was estimated at $27.50. The Tennessee Coal, Iron and Railroad Company, another subsidiary of the steel corporation, reports that each season more gardens are being planted by its employees. In 1913 over 50 per cent. more were planted than in 1912.

Another feature of the welfare work of the steel corporation is the institution of the visiting nurse service. District or visiting nurses are employed by the mining companies, usually under the direction of a local company physician or plant manager, altho in some cases they are under the city visiting nurse association. Their duties are to visit homes of employees in times of sickness and to instruct in the care and feeding of infants. They explain the proper preparation of food, advise in the matter of economical purchasing, and teach the value and necessity of cleanliness and the benefits of fresh air and sunshine.

Children's playgrounds are being installed by the corporation on unused land near the plant or mine of the subsidiary company and equipped and maintained at corporation expense. Young women in the neighborhood are said to give their services voluntarily toward this work. Playgrounds are not restricted to the use of children of the employing company, but are open to the community. A total of 101 children's playgrounds had been provided by the subsidiary companies in 1913; the total average daily attendance was reported as 8,688 during the summer months.

An organized housing movement is being conducted by the corporation through its different subsidiaries. Whole towns have been laid out, such as Gary, Indiana, and Morgan Park at Duluth, Minnesota, to provide housing facilities for employees. In the bituminous coal region the H. C. Frick Coke Company and the National Mining Company have extensively gone into the matter of maintaining sanitary conditions in their mining towns, keeping their houses well painted and fences and gardens in trim.

Labor and Scientific Management

Scientific management is that new form of industrial management to which are being applied the principles, or laws, which underlie efficiency of human effort, and which affect the arrangements of material factors essential to an industrial enterprise. It is still in a stage of discovery and experimentation. It was developed by a group of engineers, originating with Frederick W. Taylor of Philadelphia. As early as 1832, however,

Charles Babbage, a mathematician, published his "Economy of Manufacturing" (London), setting forth the controlling principles of manufacturing as he saw them. Henry R. Towne of Yale and Towne Manufacturing Company, before the American Society of Mechanical Engineers, in 1886, developed the idea of "The Engineer as Economist," and described the system which he termed "Gain Sharing," an application of profit-sharing to departments of an industry instead of to the business as a whole. During this period Taylor, the father of the system, was developing his method of reducing costs of production along somewhat different lines. He termed his system the "piece-rate system." This consists in a different rate of pay for the same piece of work, the rate being low for the ordinary rate of production and high for production according to a fixt standard. This standard is to be ascertained by means of analysis of a job into its constituent parts through a study of the time taken to perform it by an average workman. All of the motions of the worker in performing the task are timed; the motions are simplified and corrected at the same time by the engineer, who analyzes and sets the task to be performed. Time study determines the order and sequence for the performance of a task, and ascertains the time for its proper execution.

It is time and motion study, in fact, which is the essential characteristic of all phases of scientific management. Time and motion study, in the words of Mr. Taylor, is an "accurate scientific method by which the great mass of laws governing the easiest and most productive move-

ments of man are investigated. These laws constitute a great code which, for the first time in industry, completely controls the acts of the management as well as those of the workman." [42] The different representatives of the scientific management cult accept this method of ascertaining the standard task to be performed, altho they differ somewhat as to the method of fixing the rate of payment. H. L. Gantt, for instance, adopts not a piece-rate method of payment as does Mr. Taylor, but a time-rate method. His bonus plan guarantees the worker a standard day's wage and then adds a premium for the accomplishment of a standard of quantity or quality fixt in advance by a time and motion study. Harrington Emerson has modified the Gantt bonus plan by fixing a certain percentage of accomplishment of a standard task as the basis for payment for the ordinary day's wages. The operator who attains to 67 per cent. or less gets the standard day's wages, and for every percentage of increase in efficiency also gets a bonus on a sliding scale according to his relative attainment of the full task, or 100 per cent. If the worker exceeds the full task he gets an additional bonus of 1 per cent. of his wages for every percentage in excess of the standard job.

Time and motion study in scientific management, however, goes beyond the mere study of the movements of workers engaged in a particular task, and extends to the placing of industrial establishments and their constituent parts in such a way as to conserve both time and energy

[42] Hoxie, R. F., Scientific Management and Labor, p. 147.

in routing of material and transporting stocks and supplies.

Scientific management began as an attempt to secure greater productivity on the part of labor; it was an attempt to stimulate by the workman to greater effort. Mr. Taylor's first exposition of the subject was a description of methods and results obtained for the Midvale Steel Company, and the paper setting it forth was entitled "A piece-rate system." For a time it was termed the task system. It was not until later, in 1911, that it was expanded under the title "Principles of scientific management," and an attempt made to develop a theory which has now become somewhat elaborate. In its broader theoretical aspects, its advocates claim that "scientific management is a system devised by industrial engineers for the purpose of subserving the common interests of employers, workmen, and society at large, through the elimination of avoidable wastes, the general improvement of the processes and methods of production, and the just and scientific distribution of the product."

About the system there has been developed a considerable body of literature.[43] The theory in practise, however, has been set forth in a comprehensive manner in a limited number of sources. The hearings before the House Committee on Labor in 1911,[44] reports of the Chief of Ordnance, War Department,[45] and a report to the Commis-

[43] Scientific Management: A collection of the more significant articles descriptive of the Taylor system of management, edited by Clarence Bertrand Thompson. Cambridge, Harvard University Press, 1914, 878 pages. This collection of original sources is accompanied by a somewhat extended classified bibliography.

[44] Hearings before the special committee of the House of Representatives to investigate the Taylor and other systems of management, Washington, 1912.

[45] Report of the Chief of Ordnance, 1911-1916, Washington, 1911-1916.

sion on Industrial Relations by Prof. Robert Franklin Hoxie,[46] are practically the only comprehensive statements concerning its actual operation.

Mr. Hoxie's investigation occupied a year; it covered in detail 35 establishments and was supplemented by interviews with scientific management leaders, experts, employers and laboring men. As this investigation and analysis carries with it the weight of official authority it has been summarized in some detail in the pages following.

This investigation is particularly valuable in its study of the relations of scientific management to labor, which phase of it has been a storm center of the movement on account of the violent objections which have arisen to it from the side of labor. This opposition has extended so far as to have resulted in the enactment of laws, in 1915 and 1916, by Congress which were designed to discourage the application of scientific management in government manufacturing establishments.

Among the claims of the advocates of scientific management in its behalf are that it substitutes law and order in industry in place of guesswork; that it is therefore scientific in the true sense; that it makes for labor welfare in that it sets each man at the task for which he is best qualified, prevents the degradation of his labor, gives him continuity of employment, shortens his hours of labor, holds out the reward of exceptionally high wages for special ability; and finally, that it democratizes industry by treating each worker as an individual whose work is

[46] Scientific Management and Labor, by Prof. Robert Franklin Hoxie.

not subject to the whim of a foreman. In short, scientific management rests on the assumption that high general wages and improved conditions of work are quite compatible with low labor costs,—a theory long advanced by most economists.

On the other hand, whatever may be the theory, as in other fields frequently, it was not found by the Hoxie investigation that the practise always squared with it. Under scientific management functional foremanship takes the place of personal or gang foremanship. The boss under the system supervises not a body of men, but the execution of particular tasks or operations involved in the manufacture of any article. In practise it was very frequently found that this functional foremanship feature had not been adopted and that men were still handled in gangs and not as individuals engaged in a special function. No evidence was found that the practise of selecting men for their tasks or training them for their work differed materially from conditions in shops where the system had not been applied.

In the matter of time study and task setting no basis was found for the claim of the objective, detached character of the facts and so-called laws developed by the science. Far from being the invariable and purely objective matters that they are pictured, "the methods and results of time study and task setting are, in practise, the special sport of individual judgment and opinion, subject to all the possibilities of diversity, inaccuracy, and injustice that arise from human ignorance and prejudice." Altho time study may be advantageously used to

standardize and improve methods of work in general, used as a means of setting a definite task time or establishing an efficiency scale, it becomes subject to judgment. Seventeen factors are enumerated wherein personal judgment may bring about variations so as to alter the task itself. Even liberally applied, therefore, time study and task setting are bound to create considerable injustice and irritation to the workers.

Altho scientific management claims that current methods of determining and paying wages are unscientific, unjust and destructive of efficiency, it really accepts those current methods. While it may determine on the basis of the relative efficiency of the individual workman the premium or bonus to which he is entitled in comparison with another worker, yet it has found no way of determining the ordinary day's wage on the basis of which the premiums are calculated, other than the accepted method of what the market will bear, namely, free competition. It has discovered no way of determining the relative efficiency of labor as measured by the share of its contribution to the value of the product manufactured.

Scientific management was not found to have affected the length of the working day; nor had it in any case considered the matter of fatigue. There exists "nothing in the special methods of scientific management to prevent speeding up where the technical conditions make it possible and profitable, and there is much in these methods to induce it in the hands of unscrupulous employers."

The investigation upheld partially the claim that scientific management makes more certain promotion and ad-

vancement to the efficient worker; that it lessens the rigors of discipline for the worker because he is set a definite and simple task and stimulated by the premium payment for super-efficient work. Nothing is, however, stated in the report as to the amount of the added premium, employers probably being unwilling to disclose this. Information on this point must therefore be sought elsewhere, and so far as known can be found only in the annual reports of the Chief of Ordnance, War Department. From the statement of the premiums earned during the last month of the fiscal year 1915, the tabulation on p. 241 was made up:

The Chief of Ordnance in the report referred to states that the system of scientific management, practised in the Watertown Arsenal since 1911, "demonstrates the advantage to the Government and the advantage to the workmen"; and in 1916 he noted that the withdrawal of premium payments through restrictive legislation was met with dissatisfaction on the part of those who had profited by them.

The principal claim of scientific management is that it furthers the democratizing of industry. On this point the report of the Commission on Industrial Relations by Professor Hoxie declares:

"In practise, scientific management generally tends to weaken the competitive power of the individual worker and thwarts the formation of shop groups and weakens group solidarity; moreover, scientific management generally is lacking in the arrangements and machinery necessary for the actual voicing of the workers' ideas and com-

STATEMENT OF PREMIUMS PAID AT THE WATERTOWN (N. Y.) ARSENAL, JUNE, 1915

Occupation	Number employed on premium work	Average premium over and above regular pay expressed as a percentage of the latter	Percentage of all the work done which was performed under premium
Molders	9	27.62	72.48
Machinists	164	24.13	55.15
Machinist's helpers	25	22.29	8.90
Blacksmiths	10	19.68	33.39
Blacksmith's helpers	11	21.32	30.34
Molder's helpers	8	33.16	6.46
Chippers	10	31.97	38.97
Laborers	31	28.61	22.85
Toolmakers	4	20.99	7.13
Machine operators	2	17.88	97.51
Screw makers	1	35.30	99.75
Machinist's apprentices	1	1.90	82.04
Furnace helpers	2	27.35	19.25
Apprentice molders	1	11.64	57.01
Core makers	1	33.33	2.01
Firemen	1	25.34	17.35
Steam-hammer drivers	1	24.11	39.58
Skilled workmen	6	26.98	27.94
Painters	4	23.21	31.29
Carpenter's helpers	1	43.12	5.75
Carpenters	7	27.95	15.78
Toolsmiths	2	33.39	16.56
Mason's helpers	1	35.97	30.42
Teamsters	4	31.26	97.48
Plumber's helpers	1	....	.35
Riggers	1	32.14	47.28
Skilled laborers	1	32.38	14.12
Engineers, locomotive crane	1	32.36	47.12
Gang bosses	10	10.70	29.43

plaints, and for the democratic consideration and adjustment of grievances. Collective bargaining has ordinarily no place in the determination of matters vital to the workers, and the attitude toward it is usually tolerant only when it is not understood. Finally, unionism, where it means a vigorous attempt to force the viewpoint and

claims of the workers, is in general looked upon with abhorrence, and unions which are looked upon with complacency are not the kind which organized labor in general wants, while the union cooperation which is invited is altogether different from that which they stand ready to give. In practise, scientific management must, therefore, be declared autocratic; in tendency, a reversion to industrial autocracy, which forces the workers to depend upon the employer's conception of fairness and limits the democratic safeguards of the workers."

Summarizing, scientific management furthers the modern tendency toward specialization of the workers; the system tends to break down existing standards of uniformity set up by the workmen and to prevent the establishment of suitable conditions of work and play; if fully and properly applied it inevitably tends to a constant breakdown of the established crafts and craftsmanship and the elimination of skill except for the lower orders of workmen; it makes possible the breakdown of the basis of present-day unionism in its dominant form and renders collective bargaining as now practised impossible in any effective sense; the system seems to be making the relatively unskilled more efficient than ever before, but, altho unskilled labor may be receiving greater earnings than ever before under it, the gathering up and systematization of the knowledge formerly in possession of the workmen has a tendency to add to the strength of capitalism; scientific management can not be said to make for the avoidance of strikes and the establishment of industrial peace. On the whole, if the principles and practises of collective

bargaining can be made practically applicable to its operation, probably many, if not all, of the objections to scientific management on the part of labor will be eliminated. The above findings resulting from the investigation and submitted to the Commission on Industrial Relations were signed by the investigator, Professor Hoxie, and by Messrs. Frey and Valentine, collaborators in an advisory capacity, and representing the respective interests of the employees and employers.

VI

THE WAGE-EARNER'S FAMILY

The budget of the workingman's family—its income and expenditures—is coming to be accepted, more generally than ever before, as the proper criterion of the economic status of the wage-working population. A multitude of investigations of wages and earnings of individual workers have served to give a more definite and practical meaning to what was once a rather trite philosophical concept of society; the family is now regarded as the economic as well as the social unit. The numerous studies of wage-working women, for example, have disclosed that a very large proportion of them actually live with their families as wives or daughters, and that a still larger proportion contribute to the support of their families. The "pin money" theory of women's entrance into industry has been thoroughly demolished by every investigation; it has been found that women and girls become earners of wages largely, if not almost entirely, because their wages are needed to make family incomes adequate to meet family needs. Individuals are, for the greater part of their wage-working lives, economic as well as social components of family groups.

A number of studies conducted by Federal authori-

ties and other agencies during the last 15 years have aimed directly at ascertaining the economic status of wage-earning families. In the majority of these investigations the budget method has been used, data relating to total family income and total family expenditures for specified periods being obtained. In other investigations data relating to total family income alone have been secured. In all over 50,000 wage-earning families, carefully selected as representative of the wage-working population, have been included in these studies. They are regarded as fairly representative of family groups in different ranges of income, in the principal industries and occupations, and in the principal industrial localities in the United States. The resulting statistics are not estimates or calculations from wage data of individual workers, but are statements of actual conditions found to exist. In a very great degree the conclusions indicated by these different studies are similar, altho allowance must be made for differences in the localities and in the periods covered. Altho family incomes do not vary according to season or year as much as earnings of individual workers—since family income is usually the sum of the earnings of two or more wage-workers and of income from other sources—they are affected by industrial activity to a great extent. Thus statistics covering a series of years can not be regarded as accurately picturing conditions at any specified time where the opportunity for earnings is either above or below the normal. In the early months of 1915, for example, the economic status of

practically all wage-workers' families was below normal, while a year later it was abnormally improved. The absence of continuously collected statistics renders exact statements impossible.

If, however, the results of these investigations are considered in detail and as a whole, it is believed that a fairly correct and intimate view of conditions in a large and representative number of wage-working families is possible. With this purpose in mind, and with a full realization of the limitations upon the available data, the results of the more important family studies are summarized under the following heads:

Annual Incomes of Wage-Working Families.
Sources of Family Incomes.
Expenditures of Wage-Working Families.

Annual Incomes of Wage-Working Families

In order to afford as complete a statement of the total annual incomes of wage-working families as is possible in the space available here, the statistics are stated in the following ways: (1) Average annual income; (2) Distribution of families according to income; (3) Distribution of families of different races according to income; (4) Differences in family income according to geographic divisions; (5) Differences in family income according to industry.

Average Annual Income of Wage-Working Families.—Available data on the annual income of workingmen's families in the United States, collected during recent

years, indicate that the average income has been between $700 and $800. This statement is subject, of course, to the qualification that the available statistics are by no means a census of workingmen's families, but that they represent numbers of families selected as typical by investigators, whose wage-earning members are employed in the principal industries in a large number of industrial localities. An actual average is impossible of statement; the most definite statement permitted by the existing data is that there is a certain range of income—between $700 and $800 a year—in which the actual average is probably to be found.

The Federal Bureau of Labor's investigation of 25,440 workingmen's families in 1901, which included a rather large proportion of native white and older immigrant families, showed an average annual income of $750. The Federal Immigration Commission's investigation of 15,726 workingmen's families in 1908 and 1909, which included a rather large proportion of newer immigrant families, showed an average income of about $720.

These are the two most extensive investigations in recent years which secured data as to annual family income. Several local studies of workingmen's families, while tending to corroborate the generalization stated above, suggest variations according to locality, race and industry. These studies and their results, so far as they relate to the average total income of the families investigated, may be summarized briefly thus:

AVERAGE ANNUAL INCOME OF WORKINGMEN'S FAMILIES IN THE UNITED STATES. SUMMARY FROM RECENT INVESTIGATIONS

Investigation and Year in Which it Was Made		Number families included in data	Average annual income
Year	Source of data		
1901	Bureau of Labor's Cost of Living study, all sections of U. S., industries and races of workers	25,440	$749
1903–4	Mrs. L. B. More: budgetary study of families in Greenwich Village, New York City	200	851
1907	R. C. Chapin: budgetary study of families of varied races and occupations in New York City	391	838
1907	New York State Conference of Charities and Corrections: studies of families of varied races and occupations in Rochester, New York	100	600
1908	M. F. Byington (Russell Sage Foundation): families of steel workers in Homestead, Pa.	90	349
1908–9	Bureau of Labor: studies of silk, cotton, men's clothing, and glass workers' families in various localities in which mothers and children were wage-earners	8,741	883
1908–9	Immigration Commission: data for families in 38 principal industries in all eastern and southern sections, of all races	15,726	721
1909–10	University of Chicago Settlement: families of Chicago stock-yards workers, principally of races of recent immigration	184	442

The above data include only families for which statistics of actual total family income were obtained, and are not based on computations from weekly wage statistics or statistics of annual earnings of individual workers.

Distribution of Wage-Working Families According to Income.—Statistics of average annual family income could not, of course, depict actual conditions, even if such statistics were available for all families. Even if the average income were sufficient to maintain the average family in decency and in health, there would of necessity be a large proportion with incomes below the average and below an adequate standard. The distribution of families according to income, as found by the two principal investigations in recent years, is shown in the following summary tabulation:

Investigation and Year in Which It Was Made	Number of selected families	Per cent. of families having a total income: Under $300	Under $500	Under $750	Under $800	Under $1,000	$1,000 or over
U. S. Bureau of Labor, 1901	11,156*a*	1.3	21.2	....	81.2	94.5	5.5
U. S. Immigration Commission, 1908-1909..	15,726*b*	7.6	31.3	64.0	....	82.6	17.4

a These included only families in which the head was the wage-earning member, and the families were almost entirely native born and of the older immigration from Great Britain and Northern Europe.

b These included families without regard to proportion of income contributed by other members than family head, and a majority of the families were of the newer immigration from Southern and Central Europe.

Distribution of Wage-Working Families of Different Races According to Income.—The extensive investigations of the Immigration Commission found that there was a marked difference between the incomes of families of two general groups, *i.e.*, (1) the native-born and older immigration, and (2) the newer immigration. The findings of the Commission on this point are summarized in the following table:

ANNUAL FAMILY INCOME OF 15,726 WAGE-EARNERS' FAMILIES IN 1908-1909 by NATIVITY GROUPS AND RACE; PER CENT. HAVING TOTAL INCOME OF EACH SPECIFIED AMOUNT [1]

General Nativity and Race of Head of Family	Number of families selected	Per cent. of families having a total income				
		Under $300	Under $500	Under $750	Under $1,000	Under $1,500
Native white	1,070	2.2	13.5	45.1	72.7	93.6
Total native-born	1,901	2.2	17.6	49.0	74.1	93.2
Older immigration:						
Canadian, French	477	1.9	10.9	44.2	72.1	91.0
English	425	1.9	11.8	37.9	62.4	88.9
German	887	2.4	15.1	44.9	70.9	91.5
Irish	675	2.1	12.1	38.4	61.0	84.1
Swedish	460	0.9	6.3	34.8	66.7	89.1
Newer immigration:						
Bohemian and Moravian	437	3.7	22.4	60.2	80.8	94.1
Croatian	560	10.4	37.9	68.9	84.1	93.8
Hebrew	660	9.1	33.5	69.4	87.0	97.0
Italian, North	583	9.1	36.4	70.8	88.7	96.7
Italian, South	1,380	16.6	50.9	79.5	91.4	98.5
Lithuanian	763	6.9	33.2	73.9	90.8	97.6
Magyar	860	12.9	40.2	75.5	90.7	98.0
Polish	2,038	10.5	44.0	79.0	91.4	97.8
Ruthenian	571	10.0	43.3	82.1	94.4	98.9
Slovak	1,243	10.9	43.8	77.9	92.0	98.9
Grand total	15,726	7.6	31.3	64.0	82.6	95.0

Differences in Family Income According to Geographic Divisions.—Workingmen's families were found to have larger average incomes in the northern than in the southern States in spite of the larger proportion of newer immigrants in the north. This situation was set forth clearly by the Federal Bureau of Labor's investigation of 25,440 families in 1901, as shown in the following compilation on p. 251.

This difference was found to prevail by the later investigations of the Immigration Commission in several industries. In iron and steel manufacturing, for example, the average annual family income of steel workers in the Pittsburgh district was found to be $647;

[1] Vol. xix., p. 125, Immigration Commission reports.

AVERAGE FAMILY INCOME OF 25,440 WORKINGMEN'S FAMILIES IN 1901, BY GEOGRAPHICAL DIVISIONS [2]

Geographical Division	Number of families selected	Average size of family	Total income per family
North Atlantic States	13,782	4.80	$755.49
South Atlantic States	2,193	5.16	690.80
North Central States	7,340	4.98	751.62
South Central States	1,221	5.22	675.42
Western States	904	4.14	883.39
Total	25,440	4.88	749.50

in Birmingham, Ala., district, $492. The federal Bureau of Labor in 1907-9 also found similar differences in the cotton textile industry, as is set forth later in this summary.

Differences in Family Income According to Industry.—Of more importance are the differences in family income according to the industry in which the family head is employed. Roughly speaking, approximately one-half of the families of several thousand typical workers in agricultural implements, collars and cuffs, cotton goods, furniture, glass, show manufacturing, and in iron-ore mining, oil refining and slaughtering and meat packing, were found to have incomes of over $750. But approximately a fourth of the families of workers employed in agricultural implements, clothing, cotton goods and glass manufacturing, and in slaughtering and meat packing, had incomes of less than $500, while over a third of the families of anthracite coal miners, leather, silk goods and woolen and worsted workers had less than $500. Nearly half of the families of bituminous coal miners and over a half of the fami-

[2] 18th Annual Report of the Commissioner of Labor, p. 366.

lies of iron and steel workers had incomes under $500.

Data for incomes of families of workers in the various principal industries have been summarized from the extensive reports of the Immigration Commission (Volume 19) in the following tables:

PER CENT. OF FAMILIES HAVING A TOTAL YEARLY INCOME OF EACH SPECIFIED AMOUNT, BY INDUSTRY

Industry	Average family income	Per cent. of families having a total income				
		Under $300	Under $500	Under $750	Under $1,000	Under $1,500
Agricultural implements and vehicles	$741	4.7	25.2	58.2	85.1	96.4
Cigars and tobacco	970	0.8	3.2	21.8	58.9	94.4
Clothing	713	6.3	28.9	66.2	84.8	96.2
Coal mining, anthracite	618	5.2	36.0	73.8	90.2	99.1
Coal mining, bituminous	577	9.7	47.2	81.2	92.1	98.3
Collars and Cuffs	861	2.5	11.4	42.2	72.2	93.7
Copper mining and smelting	991	0.4	1.2	28.7	68.2	88.0
Cotton goods	791	3.0	25.8	59.2	77.2	92.0
Furniture	769	2.5	16.7	56.2	81.4	96.5
Glass	755	4.9	23.2	58.7	82.1	95.1
Gloves	904	0.4	6.1	41.7	74.3	93.9
Iron and steel	568	20.8	52.1	77.7	90.1	97.1
Iron ore mining	990	2.2	9.5	43.3	71.0	86.1
Leather	671	5.9	38.3	70.4	84.0	96.5
Oil refining	828	3.8	18.1	53.4	74.7	93.2
Shoes	765	7.5	32.1	59.7	78.7	93.6
Silk goods	635	16.1	38.0	69.8	88.7	98.4
Slaughtering and meat-packing	781	3.2	22.3	58.9	79.0	93.4
Sugar refining	661	4.6	19.7	75.7	92.5	98.8
Woolen and worsted goods	661	10.6	37.1	68.8	85.1	97.3
Diversified manufactures	773	5.4	27.3	59.7	78.8	93.2
Total	$721	7.6	31.3	64.0	82.6	95.0

The Federal Bureau of Labor's investigation in 1907-1909 of 8,741 families in which the family income was partly contributed by wife or children or both, as shown in the Report on Woman and Child Wage-Earners, found the average family income to be as follows in four industries:

Industry	Number of families	Average of all income
Silk manufacturing	1,909	$966
Men's clothing	2,274	790
Glass manufacturing	2,137	855
Cotton textiles:		
New England	854	1,134
South	1,567	822

This investigation, however, included families whose incomes were probably higher than the average in the industries named, since only families where women and children were employed for wages were made the subject of study.

Sources of Family Income

Less than half of the wage-earners' families in the United States whose heads are at work have been found to be supported by the earnings of the husband or father. In over one-fifth of them the children contributed to family income from their earnings. In from 5 to 10 per cent. of them the wife contributed to the family income out of her earnings. In over one-fourth of them the family income was supplemented by payments of rent or board from outside persons. The larger the family, as a general rule, the larger were the contributions from wage-earning children. It was shown that the father reaches the limit of his earning opportunity early in the family life, and that the children, if family income is to be increased sufficiently to maintain a minimum standard of decent living as they reach adolescence, must go to work.

These conclusions seem to be warranted by several authoritative, comprehensive and careful investigations

of the economic status of wage-earners' families in the United States during the past fifteen years.

The situation has been most comprehensively set forth in the results of a recent investigation of nearly 16,000 wage-workers' families,[3] which is corroborated by other investigations into specific industries. In only 58 per cent. of the native families was family income supplied entirely by the earnings of the husband. In 15 per cent. of the families the children contributed to family income, and in about 8 per cent. of the families payments from boarders and lodgers helped to make up the family fund. In families of foreign-born workers the proportion supported by the husband was considerably less, and payments from boarders and lodgers figured much more extensively. The following tabulation sets forth the situation in detail:

SOURCES OF ENTIRE FAMILY INCOME IN 15,704 WORKINGMEN'S FAMILIES IN THE PRINCIPAL INDUSTRIES, 1908-1909

Source of Entire Family Income	Per cent. of families		
	Native (white)	Foreign-born	Total [a]
Husband	58.4	38.0	40.7
Husband and wife	3.1	3.9	3.8
Husband and children	14.0	12.8	12.7
Husband, wife and children	0.5	0.5	0.5
Husband and boarders or lodgers	6.7	25.5	23.2
Wife	0.3	0.2	0.2
Wife and children	1.0	0.4	0.5
Wife and boarders or lodgers	0.2	0.1	0.1
Children	1.6	1.4	1.4
Children and boarders or lodgers	0.2	0.6	0.5
Boarders or lodgers	0.0	0.3	0.3
Other sources and combinations of sources	14.0	16.2	15.9

[a] Including native negro and native born of foreign father.

The sources of family income among older immigrant

[3] Reports of Immigration Commission, Vol. 19, pp. 129-130.

families, from Great Britain and northern Europe are very similar to those found to exist in native families. The real difference exists between the native and older immigrant group and the newer immigrant group. This is clearly shown by the statistics published in the Reports of the U. S. Immigration Commission, summarized below:

OLD AND NEW IMMIGRATION COMPARED WITH RESPECT TO SOURCE OF INCOME BY RACE (STUDY OF HOUSEHOLDS)[5]

Race	Per cent. of families having entire income from: Husband	Husband and children	Husband and boarders and lodgers	Unspecified sources
Old immigration:				
Canadian, French	32.7	29.6	6.3	14.3
English	41.3	25.9	7.1	14.6
German	37.3	22.6	9.6	23.2
Irish	33.2	26.5	6.4	20.0
Norwegian	46.2	26.9	0.0	19.2
Scotch	38.2	26.0	4.1	26.0
Welsh	35.6	26.7	2.2	26.7
New immigration:				
Armenian	29.6	8.2	14.3	27.6
Brava	69.0	0.0	10.3	13.8
Croatian	34.3	3.8	52.0	8.4
Cuban	51.2	14.0	9.3	11.6
Greek	38.8	8.2	18.4	16.3
Hebrew	54.4	17.7	13.9	9.7
Italian, North	41.0	7.4	27.3	17.8
Italian, South	39.7	9.3	26.5	14.2
Lithuanian	28.7	5.0	43.7	19.7
Magyar	32.1	4.8	43.5	14.3
Polish	35.8	8.5	37.7	13.2
Portuguese	29.5	14.3	7.4	26.4
Roumanian	20.3	0.0	65.2	11.6
Russian	43.4	2.6	46.1	6.6
Ruthenian	27.8	5.8	41.7	15.6
Servian	8.6	0.0	79.3	5.2
Slovak	44.0	7.8	29.3	14.7
Slovenian	48.5	9.2	29.4	6.1
Syrian	28.9	9.9	16.2	14.8

[5] Reports of Immigration Commission, Vol. xix, p. 132.

The conclusion seems warranted that a slightly larger proportion of children contributed to family income in native families than in immigrant families, but children were much more frequent contributors to family income in the case of older immigrant families than in the case of either native-born or newer immigrant families. The prevalence of the practise among newer immigrant households of taking boarders and lodgers was clearly shown in the statistics of sources of family income.

To state the situation in another way, it has been found that in about 7 per cent. of wage-earners' families the wage-earning wife contributed to the family income and in about 22 per cent. children wage-earners were contributors. In 10 per cent. of native white families dependence was placed upon boarders and lodgers for a part of the family income, while in 30 per cent. of all families having immigrant heads payments from boarders and lodgers helped to constitute the family income. The following summary presents these statistics in detail: [6]

PER CENT. OF 15,704 FAMILIES HAVING AN INCOME FROM HUSBAND, WIFE, CHILDREN, BOARDERS OR LODGERS AND OTHER SOURCES

Source of Family Income	Per cent. of families		
	Native (white)	Foreign-born	Total [a]
Earnings, of			
Husband	94.9	95.8	95.8
Wife	7.2	6.9	6.9
Contributions of children	21.5	22.5	22.2
Payments of boarders or lodgers	10.0	32.9	30.1
Other sources	12.3	12.7	12.6

[a] Including native negro and native born of foreign father.

[6] Reports of the Immigration Commission, Vol. XIX., p. 128.

Not only does the proportion of family income from husband, wife, children and boarders and lodgers vary according to racial groups and races, but it varies according to industry. It is clear that in industries where the annual earnings of adult males are low, and where the proportion of unskilled workers is large, the earnings of heads of families must be supplemented by income from other sources. Thus, in those industries where women and children are employed it was found that the family was dependent upon them for a considerable proportion of its income. This was particularly true of cigar and tobacco manufacturing and the cotton goods, gloves, silk goods and woolen and worsted goods industries. In anthracite coal mining in a large proportion of the families investigated children were contributors to family income, a condition due to the employment of "breaker boys," while none of the mothers were employed. The same situation was found to prevail in furniture manufacturing and slaughtering and meat-packing. The conditions for the principal industries are summarized according to general nativity groups as shown on p. 258.

In silk manufacturing the proportion of family income contributed by the wife and children is large. Even children under 16 years of age in New Jersey and Pennsylvania silk mills were found by the Federal Bureau of Labor to contribute considerably to family income, as the table on p. 259, compiled from its investigation, shows.

SOURCES OF FAMILY INCOME IN FAMILIES OF WAGE-WORKERS IN SPECIFIED INDUSTRIES BY GENERAL NATIVITY GROUPS [7]

Industry	Per cent. of families having entire income from: Husband	Husband and wife	Husband and children	Husband and lodgers or boarders
Agricultural implements				
Native	70.2	2.8	9.9	9.2
Foreign	42.7	1.2	18.8	20.7
Boots and shoes:				
Native	42.1	6.3	13.5	8.7
Foreign	33.0	6.7	11.3	25.0
Cigars and tobacco (Tampa, Fla.):				
Foreign	51.6	11.3	13.7	8.9
Clothing:				
Native	47.3	4.4	17.8	14.9
Foreign	48.2	4.6	17.3	14.6
Anthracite coal mining:				
Foreign	34.2	....	14.1	30.6
Cotton goods:				
Native	46.5	7.0	15.5	7.0
Foreign	31.0	12.4	19.2	9.5
Furniture:				
Native	55.2	1.7	15.5	13.8
Foreign	39.4	1.2	27.0	13.1
Glass:				
Native	65.3	1.7	11.9	7.6
Foreign	39.9	0.4	9.9	36.6
Gloves:				
Native	33.2	18.5	0.0	11.1
Foreign	23.2	29.1	12.3	5.4
Iron and steel:				
Native	66.2	3.0	11.4	6.7
Foreign	36.1	1.4	7.1	37.7
Iron ore mining:				
Native	61.0	....	4.8	19.0
Foreign	40.1	....	4.8	32.9
Leather:				
Native	54.3	4.0	13.3	12.0
Foreign	57.3	1.4	18.4	28.3
Oil Refining:				
Native	71.0	3.2	9.7	6.5
Foreign	40.3	1.3	10.8	29.9
Silk:				
Native	61.9	0.0	14.3	4.8
Foreign	44.5	13.2	15.0	10.6
Sugar refining:				
Foreign	30.2	0.6	8.1	50.0
Woolen and worsted:				
Foreign	23.4	15.5	13.1	15.2

[7] Reports of United States Immigration Commission.

PER CENT. OF FAMILY INCOME FROM SPECIFIED SOURCES IN 1,909 FAMILIES OF SILK-MILL WORKERS [8]

Source of Family Income	Per cent. of family income from specified sources	
	New Jersey silk mills	Pennsylvania silk mills
Father	46.3	34.0
Mother	36.8	23.1
Children over 16:		
Males	35.6	38.2
Females	42.2	26.3
Children, 14-15 years of age	17.6	16.2
Children under 14	11.6	13.4

The same situation was found to exist in the glass industry by the Bureau of Labor, thus:

SOURCE OF FAMILY INCOME IN 2,137 FAMILIES OF GLASS-WORKERS [9]

Source of Family Income	Per cent. of family income from specified sources
Father	56.0
Mother	25.1
Children 14 and 15	18.9
Children under 14	15.7

In 2,274 families of clothing industry workers it was found by the Bureau of Labor that the average annual earnings of the fathers was $400; of mothers, $150; of children 14 and 15 years of age, $129, and of children under 14 years of age, $78.

In the textile industry, which has been remarkable for its employment of women and children, the fathers of mill families were but little more important as breadwinners than the mothers and the children. The moth-

[8] Woman and Child Wage-Earners, Vol. iv, p. 263.
[9] *Ibid.*, Vol. iii, pp. 254-255.

ers contributed more to the family income in northern than in southern mill towns, while children under 16 years of age were larger contributors in the southern mill towns than in the north. While the family's dependence upon the earnings of children under 12 years of age was greater in southern textile localities than in northern, the proportion of family income contributed by children in the cotton mills, both northern and southern, as compared with the proportion in other occupations in which children can engage was relatively high, and the inducement to their early entrance into this industry was unquestionably great. Sources of the income of representative textile mill families are set forth in the following summary tabulation:

PER CENT. OF FAMILY INCOME FROM SPECIFIED SOURCES IN 2,421 FAMILIES OF TEXTILE WORKERS IN NEW ENGLAND AND SOUTHERN MILLS [10]

Source of Family Income	Per cent. of family income from specified sources	
	New England	Southern
Father	37.7	34.0
Mother	32.4	27.9
Children 14 and 15	18.7	22.9
Children 12 and 13	14.3	17.6
Children under 12	3.6	13.5

Differences in the relative importance of the principal sources of family income in different sections of the country were exhibited by the Federal cost of living investigation in 1901. The general conclusions as to

[10] Woman and Child Wage-Earners, Vol. i, p. 432.

sources of family income coincide remarkably with the results of the Federal Immigration Commission investigations made eight years later, but the data were so arranged as to indicate geographical differences. These differences were shown to be principally between the northern and southern states, on the one hand, and between the western states and the rest of the country, on the other hand, as indicated in the following:

SOURCES OF INCOME OF 25,440 WORKINGMEN'S FAMILIES IN 1901 BY GEOGRAPHICAL DIVISIONS [11]

Division Geographical	Per cent. of families with income from Occupation of				
	Husbands	Wives	Children	Boarders and lodgers	Other sources
North Atlantic..	95.9	9.0	21.6	23.4	15.1
South Atlantic..	93.4	13.9	28.5	28.4	18.0
North Central..	97.6	6.0	21.9	22.1	11.3
South Central ..	92.9	11.7	24.2	23.9	21.1
Western	92.1	3.3	14.2	16.0	8.7
United States ..	95.9	8.5	22.1	23.2	14.3

Looking at the family income problem from another point of view, the Federal Bureau of Labor's investigation of wage-earning women in stores and factories who live at home presented some significant data. The average weekly earnings of factory girls living at home in seven large cities was found to be $6.40, of which $5.46 went to the family fund. This extensive study showed that from 53 to 75 per cent. of the girls contributed all of their earnings to the family income, as indicated in the following table:

[11] Compiled from 18th Annual Report of the Commissioner of Labor, p. 51.

CONTRIBUTIONS TO FAMILY INCOME BY WOMEN WORKERS IN FACTORIES, MILLS AND MISCELLANEOUS ESTABLISHMENTS IN SEVEN CITIES, LIVING AT HOME [12]

City	Average weekly earnings	Average weekly amount paid to family	Per cent. Paying all earnings to family
Boston	$6.47	$5.16	61.7
Chicago	7.26	5.71	81.3
Minneapolis and St. Paul	6.41	4.49	53.5
New York	6.09	5.64	88.1
Philadelphia	6.72	5.40	67.9
St. Louis	6.61	5.45	74.9
Total	$6.40	$5.46	....

An investigation by the same authority of women workers in department and other retail stores in the same cities showed a very similar condition, thus:

CONTRIBUTIONS TO FAMILY INCOME BY WOMEN WORKERS IN RETAIL STORES IN SEVEN CITIES, LIVING AT HOME [13]

City	Average weekly earnings	Average weekly amount paid to family	Per cent. Paying all earnings to family
Boston	$6.71	$4.83	55.6
Chicago	8.05	6.49	78.7
Minneapolis and St. Paul	6.94	4.33	47.9
New York	6.00	5.29	84.3
Philadelphia	7.51	5.61	56.8
St. Louis	6.37	5.39	77.9
Total	$6.88	$5.39	....

[12] Woman and Child Wage-Earners, Vol. v, p. 25.
[13] *Ibid.*

The Connecticut report shows a similar situation according to general nativity groups,[14] thus:

Nativity Groups	Number included in report	Per cent. contributing to family income		
		All of earnings	Part of earnings	None of earnings
Native white:				
Native parents	454	61.6	36.1	2.2
Foreign parents.. ..	887	69.9	29.2	0.9
Foreign born	660	74.6	24.7	0.6
Total..	2,001	69.6	29.2	1.1

The Wisconsin Industrial Commission's investigation in 1914 of women wage-workers in Wisconsin also afforded some positive conclusions as to the amount actually contributed to the family income by the wage-earning women living at home "and the large number of women and young girls who through death or disability of the natural head of the family, were forced to carry all or a large share of the burden of the family expense." Commenting on the data obtained on this point, the Commission concluded:

"The fact that out of 13,686 wage-earning women living at home, exclusive of widows and married women, 38 per cent. give all their earnings to the family, while only 2 per cent. give nothing, does not furnish much evidence in favor of the pin-money theory."

The conclusion that the income of the girl living at home is often a main factor in the family support instead of a somewhat subordinate item was unmistak-

[14] Page 253, quoted by C. E. Persons in *Quarterly Journal of Economics*, February, 1915, p. 225.

ably corroborated by the extensive data obtained by the Wisconsin investigation.

The importance of contributions from wage-earning women to the income of the workingman's family is further indicated by the statistics as to age of women workers and as to the proportion living at home.

Without going into detailed statistical presentations, it may be stated that about one-fourth of all women employees in manufacturing and mercantile establishments are from 16 to 20 years of age and about a fourth are from 21 to 25 years of age. Thus, considerably over one-half of the female wage-earners employed in industry are girls and women under 25 years of age. The younger the woman worker, it has been found, the greater is the proportion of her earnings contributed to family income.

The large proportion of girls and young women in the female wage-earning group suggests that they are not independent workers, but members of families. This is thoroughly borne out by all the statistics available. The Federal Bureau of Labor's investigation of women employed in stores and factories, already referred to, showed that over three-fourths of the women in stores and over four-fifths of the women in factories lived at home.[15] Another investigation showed even a higher percentage.[16] The Census for about 900,000 working women (excluding servants and waitresses

[15] Woman and Child Wage-Earners, Vol. v, p. 15.

[16] McLean, Wage-Earning Women, Data for 5,503 wage-earning women in New York, Chicago, New England and New Jersey, showed that approximately 85 per cent. lived at home.

who lived with their employers) showed about 81 per cent. lived at home. Of those living at home, nearly three-fourths were living in families where there were other breadwinners. The recent investigation of wage-earning women in Wisconsin by the Wisconsin Industrial Commission (1914) showed that of 17,356 women workers about 81 per cent. lived at home.

In no other situation, possibly, is the dependence upon earnings of wives and children so seriously significant as in the "sweating" trades. In an investigation of "home-working" conditions in certain large cities, only about 11 per cent. of the husbands in typical families where home work was done earned $500 or more per annum, while over a half of them earned less than $300 a year. In more detail the situation is shown in the following tabulation:

EARNINGS OF HUSBANDS OF "HOME-WORKING" WOMEN IN CHICAGO, ROCHESTER, NEW YORK, PHILADELPHIA AND BALTIMORE[17]

Range of Annual Income	Per cent. of 532 husbands of home-workers
Under $100	3.8
$100-$199	18.4
200- 299	34.4
300- 399	20.3
400- 499	12.2
500 and over	10.9

In New York, where the largest number of homes were investigated, nearly two-thirds of the husbands of women employed as homeworkers earned less than $300 annually.

[17] Compiled from Woman and Child Wage-Earners, Vol. ii, p. 244.

The necessity for contributions to family income from other sources than the husband is seen in practically all industries and occupations where the level of wages is low or where irregularity of employment is so great as to reduce the opportunity for earning wages adequate to support a family. An illustration of this is afforded by a recent investigation of wages and family budgets in the Chicago stockyards district.[17a] One hundred and eighty-four families, chiefly of newer immigrants employed at unskilled labor, were selected as representative and were studied in a detailed manner. In only 94 families, or about one-half, was the father the only wage-earner; in 52 families children of 14 or 15 years of age were at work; in 21 cases the wife worked all or part time for wages; 92 families had incomes from boarders or lodgers, and 42 families had other sources of income. "Probably the two most significant facts disclosed by our analysis of the 184 family incomes," said the report of the investigators, "are, first, that the average income was $854.13 per family; and, second, that the average income secured by the 170 husbands who were at work was $503.15, or less than $10 per week." These figures, it may be noted, coincide very closely with the statistics obtained for this industry by the Federal Immigration Commission and may be regarded as typical. The following summary for the 184 families shows the situation clearly:

[17a] By J. C. Kennedy and others for the University of Chicago Settlement.

SOURCES OF FAMILY INCOME IN 184 FAMILIES IN CHICAGO STOCKYARDS DISTRICT[18]

Source of Family Income	All families	Families securing income from specific source
Husband	$464.87	$503.15
Children, 14-15 years of age	54.38	200.14
Other members of family	210.01	552.02
Lodgers	91.72	183.44
Other sources	33.15	145.23
Total	$854.13	

The relation between the dependency of the family upon sources of income other than the father's earnings and the amount of the father's earnings is, of course, fundamental. It has been brought out clearly in at least two authoritative investigations of wage-earners' families, that conducted by Prof. R. C. Chapin in New York City in 1907 and that by the British Board of Trade in the course of its inquiry into the cost of living in American towns.

Professor Chapin's study of 318 typical families showed "that while the earnings of the father are the main dependence, the importance of additions from the earnings of others, and from lodgers, increases with the higher incomes." This was also shown by the British report of a very much larger number of families. In other words, not only are the fathers' earnings insufficient in most cases, but any increase in family income is more likely to be due to other sources of income than to his wages. The Chapin report showed that less than one-half of the 315 representative families

[18] J. C. Kennedy and others, Wages and Family Budgets in the Chicago Stockyards District, pp. 64-65.

were able or willing to get along on the father's wages. A family income of above $700 or $800 was found to be obtainable as a rule only by taking lodgers or by putting mother and children to work. The principal facts in the Chapin report may be summarized statistically as follows:[19]

SOURCES OF FAMILY INCOME IN 318 FAMILIES IN THE CHICAGO STOCKYARDS DISTRICT

Income Group	Per cent. of families entirely supported by the father	Average total income for group	Per cent. of family income from			
			Earnings of father	Earnings of others	Lodgers	Other sources
$600- $699 ..	63.9	$650	94.0	2.3	2.8	0.9
700- 799 ..	50.6	748	89.5	4.8	5.2	0.5
800- 899 ..	30.1	846	84.2	9.7	5.5	0.6
900- 999 ..	54.0	942	85.0	11.4	3.1	0.5
1,000-1,099 ..	25.8	1,044	81.7	11.6	5.8	0.9

The relation of family income to the proportionate importance of the earnings of father, mother and children as sources of the family fund, taken in connection with the size of the family, and family expenditures, as indicative of the standard of living, is of utmost importance. This relation is discust more in detail elsewhere, but in order to emphasize it in this connection a compilation of statistics for 3,215 workingmen's families, secured by the British Board of Trade, has been made. In order to employ statistics for a homogeneous group of families, only native (white) and British families in the northern states were selected from the report. The British families included

[19] R. C. Chapin, Standard of Living in New York City, pp. 55 and 63.

those whose heads were born in England, Ireland, Scotland and Canada. Their standard of living and economic status has been found, as will be pointed out later in detail, to be similar. Very few of the families selected had boarders, thus eliminating from consideration income from that source, and confining the picture to native white and similar families which maintained a distinct and separate family life. For the most part the heads of the families were skilled workers.

The necessity for supplementing the earnings of the father in order to allow a family income sufficient for subsistence and for comfort is clearly suggested by these statistics. Every study of the living conditions of workingmen's families in relation to earnings and family income has proven this to be true, but it is perhaps more clearly and concretely illustrated in the table on p. 270, compiled from the statistics referred to.

From this table the following facts may be pointed out as significant: (1) The size of the family was found to be larger in proportion to the incomes of increasing size, and the increased size of the family was due almost entirely to the increased number of children. The average number of other persons living at home, including parents, was, according to income groups, as follows: 2, 2.08, 2.14, 2.25, 2.19, 2.28, 2.18. (2) The proportion of the total income of the family contributed by the husband decreases after the income group of $24.33-$29.20 (average $26.10) is reached. The proportion contributed by children be-

FAMILY INCOME, SOURCES OF FAMILY INCOME AND SIZE OF FAMILY IN 3,215 FAMILIES, 1909 [20]

	Families reporting weekly income of							
	Under $9.73	$9.73 and under $14.60	$14.60 and under $19.47	$19.47 and under $24.33	$24.33 and under $29.20	$29.20 and under $34.07	$34.07 and under $38.93	$38.93 and over
Average weekly income	$8.76	$12.42	$13.99	$21.51	$26.10	$31.38	$36.12	$50.33
Average number of children living at home	1.78	2.06	2.46	2.88	3.07	3.63	3.82	4.20
Average number of persons at home	3.78	4.08	4.54	5.02	5.27	5.82	6.10	6.38
Average weekly income:								
Husband	8.16	11.53	15.16	17.14	19.11	19.14	19.98	22.34
Wife	.26	.25	.29	.27	.55	.20	.44	.36
Children	.19	.41	.91	2.69	4.40	9.32	11.72	24.03
Other sources	.14	.22	.63	1.40	2.04	2.62	3.99	3.60

comes an important factor after an average income of $13.99 is reached, and is actually more than that contributed by the husband in families with weekly income of $50.33. The proportion of income contributed by the wife is inconsiderable, while that coming from other sources than earnings is usually less than one-tenth of the total income.

The explanation of the increasing proportion of income contributed by children lies, of course, in their increasing age and in their employment, and to some extent to the increasing age of the father of the family as the higher income groups are reached. This may be seen in some additional figures which afford an indi-

[20] Compiled from Digest of British Board of Trade Report on the Cost of Living in American Towns, Sen. Doc. 38, 62d Cong., 1st Sess., p. 42. The families included were native white and British-born in cities in northern states.

cation of the age of the children and, therefore, of the parents:

Total Average Weekly Income of Family	Average weekly income from children of the age of	
	16 to 20 years	21 years or over
$8.76	.....	$0.12
12.42	$0.23	.07
16.99	.50	.21
21.51	1.63	.73
26.10	2.94	1.18
31.38	4.98	3.88
36.13	6.54	4.56
50.33	9.75	13.88

The foregoing statistics may be said to picture a wage-earning family over a period of twenty-one or more years. The father's earnings increase considerably during the first nine or ten years, but maintain a slower rate of increase afterward. After the first nine or ten years the children's earnings begin to figure, becoming an important factor after 16 years have passed and reaching a position of greater importance than the father's earnings after 20 years or more. Had it not been for the earnings of the children the family income would thus have remained in the third income group shown in the accompanying table, at about $19.50 weekly.

Expenditures of Wage-Working Families

The fact that in so large a proportion of wage-working families the earnings of the fathers are supplemented by income from other sources suggests a review of the available data relating to family expenditures as an explanation of the apparent necessity for additional income.

Several important collections of family budgets of wage-earners have been made in the United States in the last fourteen years. From these the conclusion appears warrantable that the family of average size and of earnings within the predominant ranges of income disposes of its income in approximately the following manner at existing prices:[21]

	Per cent.
Food	40 to 50
Rent	17 to 20
Clothing	12 to 15
Fuel and lighting	4 to 8
Sundries	10 to 17

These approximations take into consideration the rise in prices of foods and in rents. They indicate the important fact that something like four-fifths of the family income must be spent for subsistence, clothing and shelter. For all of the other items of expenditure which contribute to the health, comfort and contentment of the family a comparatively small proportion of the family income is available. As an illustration the more detailed data obtained from an intensive study by the U. S. Bureau of Labor of the annual budgets of 2,567 workingmen's families may be presented. It should be kept in mind that these data were gathered in 1901, before the recent extraordinary

[21] The following reports and publications of budgetary investigations have been consulted, the year in which they were conducted being indicated:

Chapin—The Standard of Living in New York City (1907); More—Wage-Earners' Budgets (1903-1905); Byington—Homestead; A Mill Town (1907-1908); New York State Conference of Charities and Correctives (published in Chapin, *sup, cit.*, 1907); U. S. Bureau of Labor—Woman and Child Wage-Earners, Vol. xix (1909); British Board of Trade—The Cost of Living in American Towns (1909); Eighteenth Annual Report of the Commissioner of Labor on Cost of Living (1901); J. C. Kennedy and others—Wages and Family Budgets in the Chicago Stockyard District (1909-1910); Pittsburgh Associated Charities report (1910).

increase in food prices took place, and that the average annual family income was $827, a sum somewhat higher than the average annual income of wage-earners.[22] The following table is compiled from the results of this investigation:

EXPENDITURES OF 2,567 WAGE-EARNERS' FAMILIES (AVERAGE INCOME, $827; AVERAGE SIZE, 5.31 PERSONS; TOTAL AVERAGE EXPENDITURES, $768) IN 1901[23]

Item of Expenditure	Per cent. of families having expenditures for	Average expenditures of families having expenditures for
Food	100.0	$326.90
Housing:		
Rent	80.8	122.92
Mortgage:		
Principal	5.5	145.82
Interest	7.9	53.73
Fuel	99.9	32.24
Lighting	100.0	8.15
Clothing:		
Husband	98.1	34.38
Wife	98.7	26.37
Children	88.7	54.15
Taxes	34.3	16.86
Insurance:		
Property	31.4	4.89
Life	65.8	29.55
Organizations:		
Labor	36.7	10.52
Other	43.7	11.84
Religion	80.3	9.49
Charity	51.0	4.68
Furniture and utensils	84.5	31.13
Books and newspapers	94.7	8.82
Amusements and vacations	70.3	17.44
Intoxicating liquors	50.7	24.53
Tobacco	79.2	13.80
Sickness and death	76.7	26.78
Other purposes	98.9	45.61

[22] The Bureau of Labor considered these 2,567 families fairly representative of the 25,440 families for which less detailed information was obtained. The average annual family income of the larger group was $750.

[23] Compiled from Eighteenth Annual Report of the U. S. Commissioner of Labor.

The actual situation as found to exist in 1901 by the Federal Bureau of Labor among 11,156 "normal" [24] families in the principal industries and occupations having different ranges of annual income, showed that there were important variations in the proportions spent for the different items according to size of annual income, and suggest in a general way the inadequacy of incomes below certain ranges. It was found that the higher the income the lower were the proportions spent for food and fuel, the higher were the proportions spent for clothing and sundries, while the proportion spent for lighting was practically the same in families earning all ranges of income. It must be kept in mind that since this investigation was made the prices of food have increased to a large extent, and of some of the other items to a lesser extent, so that the percentage spent for food—as later local budgetary studies have shown—has appreciably increased. The Bureau of Labor's 1901 investigation affords, however, the most comprehensive data, which are summarized in the tabulation at the top of p. 275.

Similar conclusions were indicated by the later investigation conducted in 28 American industrial localities by the British Board of Trade. Weekly budgets of several thousand wage-earners' families were obtained, and the data relating to expenditures for certain purposes were tabulated according to family incomes as follows (see table at bottom of p. 275):

[24] By "normal" families is meant those in which there is a wage-earning father, a wife, and three children under 14 years of age, and no servants or dependents.

PER CENT. OF EXPENDITURE FOR VARIOUS PURPOSES IN 11,156 NORMAL FAMILIES, BY CLASSIFIED INCOME

Classified Income	Rent	Fuel	Lighting	Food	Clothing	Sundries	Total
Under $200	16.93	6.69	1.27	50.83	8.68	15.58	100.00
$200 or under $300	18.02	6.09	1.13	47.33	8.66	18.77	100.00
300 or under 400	18.69	5.97	1.14	48.09	10.02	16.09	100.00
400 or under 500	18.57	5.54	1.12	46.88	11.39	16.50	100.00
500 or under 600	18.43	5.09	1.12	46.16	11.98	17.22	100.00
600 or under 700	18.48	4.65	1.12	43.48	12.88	19.39	100.00
700 or under 800	18.17	4.14	1.12	41.44	13.50	21.63	100.00
800 or under 900	17.07	3.87	1.10	41.37	13.57	23.02	100.00
900 or under 1,000	17.58	3.85	1.11	39.90	14.35	23.21	100.00
1,000 or under 1,100	17.53	3.77	1.16	38.79	15.06	23.69	100.00
1,100 or under 1,200	16.59	3.63	1.08	37.68	14.89	26.13	100.00
1,200 or over	17.40	3.85	1.18	36.45	15.72	25.40	100.00
Total	18.12	4.57	1.12	43.13	12.95	20.11	100.00

PER CENT. OF TOTAL FAMILY INCOME EXPENDED FOR MEAT, ALL FOOD, RENT, AND FOR FOOD AND RENT, IN 3,215 FAMILIES IN 1909 [25]

Items of Expenditures	Families Reporting Weekly Incomes of: Under $9.73	$9.73 and under $14.60	$14.60 and under $19.47	$19.47 and under $24.33	$24.33 and under $29.20	$29.20 and under $34.07	$34.07 and under $38.93	$38.93 and over
Meat	12.95	13.49	12.22	11.36	10.50	9.32	10.23	9.28
All food	51.39	47.62	44.15	41.19	37.88	33.53	34.49	28.40
Rent	19.53	17.74	16.66	15.34	14.04	12.01	12.04	9.91
Food and rent	70.92	65.36	66.81	56.53	51.82	47.59	46.53	38.31

The above statistics showed that in the families for which data were obtained: (1) the percentage of income spent for rent maintains a steady decrease as the income increases; (2) the percentage of income spent for all food maintains a steady increase until the average weekly income of $38.93 is reached, when it drops

[25] Compiled from Digest of British Board of Trade Report on the Cost of Living in American Towns, Sen. Doc. 38, 62d Cong., 1st Sess., p. 44. The families included were native white and British-born in cities in northern states.

more sharply; (3) the percentage of income spent for meats, on the other hand, tends to decrease much more slowly than the percentage of income spent for rent and all foods. In fact, it actually shows an increase from the first to the second income group. The per cent. of income spent for all food shows a drop of 23 per cent. in the highest income group, as compared with the lowest, while the figures for per cent. spent for meats show a drop of only 3.7 per cent.[26]

The importance of the earnings of children in the 3,215 wage-earning families represented in the above data is a significant fact (see table on p. 270). Taken into consideration with the expenditures for food, and particularly for meat, the children's earnings may be said to be almost the sole means by which families having a weekly income of over $19 are able to raise their standard of diet in any considerable degree. The same is true, of course, for the other elements that make up their standard of living in general.

These proportions have been found to vary according to the race, size and locality of the family as well as according to income. The proportion spent for food was found to be over 53 per cent. for the newer immigrant families of unskilled stockyard workers, for example, and less than 40 per cent. for families of highly skilled, better-paid native and older immigrant families. The results of various budgetary studies made

[26] The data bearing on the relation of family income to the character of diet of wage-working families and on geographical and other factors having apparent effects on their diet, have been summarized in a paper on "The Prevalence of Pellagra—Its Possible Relation to the Rise in Cost of Food," by Edgar Sydenstricker, U. S. Public Health Reports, Reprint No. 308.

in the United States show variations in the relation of food expenditures to total family expenditures as follows:

The larger the size of the family, the income remaining constant, the greater is the per cent. spent for food. The per cent. expended for fuel and light remains without change, while comparatively smaller percentage for clothing, sundries and rent are shown. The larger the size of the family, the smaller is the per cent. of savings. It should be noted that taking wage-earners' families grouped according to the number of persons per family, the income increases somewhat in proportion to the greater size of the family. The increased income, however, is due to the earnings of the husband up to only a certain point; beyond that point the earnings of the children become more and more important, contributing practically the entire increase of income. The earnings of the children are thus the means by which the family is able to maintain or better its standard of living, as illustrated by certain facts as to its diet.

While the data relating to racial or nationality differences are of such nature as to require extreme caution in drawing conclusions, it seems to be clearly indicated that the native-born white American families spend a slightly smaller proportion for food than do the foreign families of the older immigrant races (*i.e.,* Scotch, Irish, English, German, etc.), and a considerably smaller proportion than the foreign families of the newer immigrant nationalities (*i.e.,* Italian, Austro-Hungarian, Rus-

sian, etc.). The highest percentage of total expenditures spent on food by the newer immigrants is partly due to their low incomes, but even when they are compared with native white and older immigrant families in similar income groups, the same tendency is shown. The large proportion of the income of newer immigrants saved or sent abroad, and their small expenditures for those things that are considered necessities according to the American standard of living, must also be taken into consideration. Negro wage-earners' families in the South were found to have the smallest food expenditures, in proportion to income, of all races. Food prices show a general tendency to be higher in the smaller industrial localities than in the larger population centers,[27] while they are found to be on a generally higher level in New England and Southern than in Central and Middle West industrial localities.[28] These conditions, of course, have an effect on the make-up of the family budget of the wage-workers.

Expenditures for rent have been found to vary not only according to the income of the family, but also according to locality and race. Racial habits and standards of living account for variations in expenditures for rent just as in the case of expenditures for food. According to the findings of the Immigration

[27] Taking prices in New York City as 100, quotations of only predominant food consumed by wage-earners being used, the British Board of Trade found that the mean index was 102 and 103 for localities under 250,000 population and 96 and 98 for centers with over 250,000. *Sup. cit.*, p. 35.

[28] A similar index number constructed by the same authority quoted above shows that food prices in New York City and other Eastern cities was 100, New England and Southern localities 103, and Central and Middle West localities 97 and 95, respectively.

Commission, a higher standard of living and a smaller degree of congestion in households the heads of which were born in the United States and Great Britain and Northern Europe, as compared with those of Southern and Eastern Europe, were clearly shown by the average rent payments monthly per capita according to race. For example:

NATIVE AND OLDER IMMIGRANT GROUP	
Race	Monthly per capita payment for rent
Native (white)	$2.58
English	2.34
German	1.98
Irish	1.97
Scotch	2.41
Swedish	7.38

NEWER IMMIGRANT GROUP	
Race	Monthly per capita payment for rent
Bulgarian	$0.97
Croatian	1.09
Macedonian	.78
Servian	1.03
Slovak	1.18

Rent expenditures in over 13,000 households studied by agents of the Immigration Commission averaged $8.96 per apartment or house per month, the average for native-born (white) families being $11.55 and for foreign-born $8.72. Anthracite coal miners paid $7.84; bituminous coal miners, $6.54; iron and steel workers, $7.51; copper mining and smelting workers, $6.21; cotton mill workers, $8.68; slaughtering and meat-packing workers, $8.90, and glass workers, $8.91. Clothing workers, on the other hand, paid $11.94; collar and cuff workers, $11.26; shoe workers, $12.63. These differences exist not only because of the predominance of certain races in different industries, but because of the difference in the income of workers according to industry, and of the fact that rents are cheaper in certain

localities than in others. The smaller the industrial locality, as a general rule, the lower are rents.[29]

Taking the results of other investigations of the living conditions of wage-working families into consideration, the general statement appears warranted that the average wage-earner's household pays between $9 and $10 a month for that type and size of house or apartment which seems to be predominant—the four- or five-room dwelling or apartment—or a housing expenditure of from $100 to $120 a year.[30]

The rise in the cost of living can not have failed to have a most serious effect upon families whose incomes have not kept pace with the advance in prices. Even if it should be true that wages have kept pace and that the loss in working time is no greater than it was fifteen years ago, the large proportion of wage-earners who are in the lower levels of income are much harder prest. A careful examination of all the available information gathered in the period 1901-1914 warrants the significant conclusion that the more recent budgetary studies show a higher percentage of income spent for food than do the earlier studies in families in all ranges of annual income up to $900 or $1,000. In

[29] Taking rents of working-class homes in New York as 100, the British Board of Trade found the following ratio: New York, 100; cities having over 500,000 population, 78; 250,000 to 500,000, 78; 100,000 to 250,000, 69; under 100,000, 64. *Sup. cit.*, p. 26.

[30] There is an unusual degree of unanimity among investigators on the cost of rent. For example, the Immigration Commission's statistics for over 27,000 representative households in industrial communities and in large cities showed that the cost per room per annum was slightly over $30. The British Board of Trade's inquiry into the cost of living in American towns and cities showed that the rent per room per annum from rent lists of 90,000 working-class dwellings and paid by 7,616 families whose budgets were obtained, was slightly over $33. These two investigations were made in 1909. Other special investigations strongly corroborate these conclusions.

other words, the advance of over 60 per cent. in the average of retail prices of the principal articles of food constituting the diet of the workingman's family has resulted: (1) In a larger proportion of family income being spent for food and relatively less proportions being spent for fuel, light, clothing and sundries, and possibly for rent, altho rents have also increased, the increase in percentage for food being from about 43 to 50; (2) in forcing the point of minimum subsistence much higher in the scale of incomes, from about $600 or $700 in 1901 to $800 or $900 to-day.

Since the proportion of income spent for food is greater in large families than in small families (being nearly 17 per cent. greater in the average family with five children than in the family with one child),[31] the increase in food prices bears most heavily upon the workingman who has several children.

[31] Eighteenth Annual Report of the Commissioner of Labor, p. 98.

VII

LIVING CONDITIONS

THE standard of living which the wage-working family is able to maintain is the true measure of the income it receives. The familiar distinction between "money" wages and "real" wages holds true, of course, for the family wage. The statistics of incomes and expenditures of wage-working families, reviewed in the preceding chapter, have perhaps suggested to the reader the extent to which these families are above or below the line of bankruptcy; they do not, however, depict the conditions under which wage-working families live, nor do they permit an accurate conception of the adequacy of wages and incomes of industrial workers to maintain decent and healthful standards of living, or to provide for comforts, educational and recreational facilities, or luxuries. In this chapter the attempt is made to present in summary form some of the salient facts relating to living conditions that have been collected by the more comprehensive investigations of recent years. In a subsequent chapter the adequacy of wages to maintain those conditions which have been fairly well agreed upon by various authorities and students as necessary and proper for decency, health, and a minimum of comfort, will be discust.

It is impossible, of course, to present in digested form the large amount of descriptive literature relating to living conditions of wage-workers in the United States which has appeared in the last few years. Those conditions, however, which have been reduced to statistical form are capable of such presentation. From these have been selected the conditions which entail the greatest expenditure by wage-working families, such as diet and housing, and certain other conditions which are usually regarded as indicative of the standard of living, such as home owning, living arrangements, and general community environment.

The Diet of Wage-Working Families

A bare statement of the predominant articles composing the diet of wage-working families will, of course, not reveal any essential differences between their diet and the diet of families of other groups of the population. Thus an examination of the data afforded by several intensive budgetary studies of wage-working families merely indicates that their diet includes perhaps a relatively greater amount of the essential or necessary articles of food and less of those articles ordinarily classed as "luxuries." These studies have shown that approximately 70 or 75 per cent. of the diet of the average wage-earner's family is composed of the following (from the standpoint of both cost and quantity):

Fresh beef, fresh pork, ham, eggs, milk, peas and beans, comprising the principal protein foods; salt pork and

bacon, butter and lard, comprising the principal fatty foods; wheat flour, baker's bread (wheaten), cornmeal, Irish potatoes, sweet potatoes, sugar, molasses and syrup, canned and green vegetables (other than beans and peas), and fruits, comprising the principal starch foods.[1]

The impossibility of making a statement of the "average" diet of workingmen's families is apparent when it is remembered that important variations in the character, variety and quantity of food arise from differences in race, income, location and size of family. Perhaps the simplest way of summarizing the many detailed descriptions is to describe the diet of one group of families and to note the principal variations from that type.

The intensive study of food expenditures and consumption among wage-earners' families made by the British Board of Trade in its inquiry into cost of living in American towns in 1909 affords the most detailed, as well as the most comprehensive, data. The following table shows the situation in one group of families

[1] The most extensive and detailed budgetary study in the last few years in the United States, which was made by the British Board of Trade in 1909, shows that the per cent. of family income spent for the principal articles of food, taking all families together, was as follows: Meats, 12 to 16; eggs, 2; milk, 2.5; butter, 3.5; lard, 1.2; flour, 2.5; bread, 2; potatoes, 1.4; green vegetables, 2.5; fruit, 2; coffee, 1.5. Of the expenditures for meat, 50 per cent. was spent for beef. The Bureau of Labor 1901 budgets show much the same proportion, but expenditures for beef were 40 per cent. of the total spent for meats. Other budgetary studies, altho stating results in less detail, tend to corroborate this general statement. The following is the list of 15 principal articles of food which has been used by the Department of Labor as the basis for noting price changes: Fresh beef (sirloin steak, round steak, rib roast); fresh hog products (pork chops); salt hog products (bacon, smoked; ham, smoked); poultry (hens); eggs, strictly fresh; milk, fresh; butter, creamery; lard, pure; sugar, granulated; flour and meal (wheat and corn flour); potatoes (Irish).

The 18th Annual Report of the Commissioner of Labor, which contained the results of the budgetary investigation in 1901, showed that the 15 articles of food named above represented approximately two-thirds (63.97) per cent. of the average expenditure for food in workingmen's families in that year.

—native (white) and British-born. The data were obtained from 532 families carefully selected as representative. These families had weekly incomes ranging from $9.73 to $14.60, averaging $12.42, and are typical from the point of view of income. The average number of persons per family were 4.08, including an average of 2.06 children living at home. It should be remembered, of course, that the average family in this group was not found to consume all of these articles of diet in a single week. The list merely indicates the relative importance of each article in the diets of all families in the group. (See p. 286.)

With these statements as to predominant foods and this comparative description of a large group of representative families of a given race, location, size and income in mind, it is important to note some specific variations that are shown by recent budgetary studies. These variations are according to geographic location in the United States, to racial group, and to income. There is evidence also that the extraordinarily rapid rise in the prices of certain foods has caused changes in the diet of certain groups of families.[2]

1. The principal differences in diet of wage-earners' families according to geographical divisions may be briefly summed up as follows:

Beef, milk, bread and Irish potatoes are important articles of diet in wage-earners' families in the North Atlantic States and Western States. Con-

[2] See pp. 290 and 335.

Articles of Food		Amount consumed per week	Expenditure per week
Bread, wheat	lbs.	6.53	$0.35
Bread, rye	"	.96	.04
Bread, other	"	.05	a
Flour, wheat	"	7.94	.30
Flour, rye	"	.04	a
Flour, buckwheat and other	"	.26	.01
Corn and cornmeal	"	.68	.02
Cakes, crackers and doughnuts	"	1.57	.14
Rolls, buns and biscuits	"	1.37	.09
Macaroni and spaghetti	"	.42	.03
Rice, barley and sago	"	.67	.05
Oatmeal and breakfast cereals	"	.96	.06
Potatoes, Irish	"	17.43	.34
Potatoes, sweet	"	.43	.01
Dried peas and beans	"	1.24	.07
Sweet corn		...	.03
Green vegetables, etc.		...	.26
Canned vegetables, etc.		...	.09
Beef, corned and fresh	"	5.09	.75
Mutton and lamb	"	.69	.11
Pork (fresh and salt)	"	1.55	.28
Bacon, ham brawn	"	1.26	.21
Veal	"	.46	.07
Sausage	"	.51	.06
Poultry	"	.30	.05
Fish	"	1.13	.11
Lard, suet, dripping	"	1.16	.15
Butter	"	1.35	.41
Oleomargarine	"	.09	.02
Olive oil	pints	.03	.01
Cheese	lbs.	.31	.05
Milk, fresh	quarts	3.75	.33
Milk, condensed	lbs.	.71	.08
Eggs	number	14.49	.33
Tea	lbs.	.27	.12
Coffee	"	.77	.17
Cocoa and chocolate	"	.04	.01
Sugar	"	3.78	.21
Molasses and syrup	pints	.33	.03
Vinegar, pickles and condiments		...	.03
Fruits and jams		...	.18
Other items		...	.02
Meals away from home		...	.07
Total			$5.91

a Less than one cent.

trasted with these are flour, meal, salt hog products, lard and sweet potatoes in the Southern States. Fish is an important article in the diet of wage-earners in the North Atlantic States, and fresh hog products in Northern and Central States. Using groups of food as the basis, it has been found that the consumption of lean meats and other protein foods is highest in the Northern States, and of fats and cereals in the Southern States, while a more evenly balanced diet of all three groups of food is found in the Central and Western States.

2. The principal racial differences in diet are seen between two general groups of wage-earners: (a) the natives (white) and older immigrants (from Great Britain and northern Europe), and (b) the newer immigrants (from southern and eastern Europe).

There is a marked similarity, generally speaking, in the diets of native American families and of English, Irish, Scotch, Welsh and German families. On the other hand, diets of native white families and of newer immigrant families (Italian, Russian and Austro-Hungarian) exhibit marked differences in the following respects: (a) The Russians and Austro-Hungarians are large consumers of meats and of protein foods in general, and smaller consumers of fats and cereals or starchy foods than native white families; (b) the Italians are smaller consumers of meats and larger consumers of cereals or starchy foods than native white families. Apparently their consumption of fats

is very similar in quantity to that of native white families.

It is significant to note that all newer immigrants spend a greater proportion of their total expenditures for food than do the native wage-earners. This seems to be due to the fact that their standard of living is less subject to the demands created by desires other than for food. In a sense, their standard is more elemental. They are more free to satisfy their natural, physical wants and less restricted than native wage-earners by the pressure of other wants upon their income.

In the selection of their diet it seems to be the consensus of observations that the newer immigrant has the advantage over the native wage-earners. In the first place, his taste is less affected by the American standards of variety, just as the whole of his desire is less restricted. He does not demand as expensive a quality of food, nor does he desire as great a variety. He has been accustomed to cheap, coarse food. In the second place, his experience and his habits of consumption enable him to select the cheapest kinds of the foods he uses and to make the most of them. What effect continued residence in the United States has upon the diet of the immigrant has not been made the subject of any study so far. The fact that the diet of older immigrant races, the great majority of which have been in this country a long time, is so similar to the diet of natives, would indicate a tendency for the immigrants' diet to conform to that of

the natives. The children of newer immigrant workers tend to have very much the same diet and general living standard as other natives.

In the course of a community study of Johnstown, Pennsylvania, where several thousand newer immigrants were employed as steel workers, data as to the kinds of food consumed in a number of families and boarding-house groups were secured. Magyars and Poles were noticeable for their consumption of cheap beef and pork, bread and coffee. The Slovaks and Croatians had more vegetables in their diet. Italians consumed comparatively small quantities of meat, but showed their distinctive habits of consuming large quantities of vegetables, spaghetti, bread and olive oil. The Austro-Hungarian workers, as a whole, in spite of high meat prices, made meat one of their chief articles of diet. Their standard of living in other respects was low, comforts and even ordinary provisions for decency were frequently lacking, and congested housing conditions were often marked, but sacrifices were made in order to satisfy their appetite for meat. Often, in reply to questions, their comment was that they had to eat meat in order to work.

3. Of more importance are the variations in diet that are found in wage-earners' families having different incomes and, therefore, different purchasing abilities. A careful examination of all the authoritative budgetary data indicates: First, the *per capita* or actual consumption of food shows two kinds of variations where an increasing range of income is considered, *viz*:

in variety and quantity. Second, the greater the income the greater the variety of foods. This is seen in families of even low incomes, where a slight increase enables them to substitute bought bread and cakes, rolls, etc., for home-made bread. Third, up to a certain limit, the greater the income the greater the quantity. In this connection it is important to note: (a) that the greatest increase in quantity occurs in the lower income groups as the income rises. In other words, below a certain limit of income ($700 or $800 a year per family) the quantity of food purchaseable is apparently insufficient to satisfy physical wants; above that limit of income, physical needs may be satisfied as to actual quantity, but the desire for variety continues to increase the amount, but at a less rapid rate, at least a portion of which is not actually consumed but goes to waste; (b) that the main increase in quantity of food of families of low incomes is in response to the demand for meats. As corollaries, it seems proper to suggest that the quantity of meat purchaseable by families having the lower incomes is insufficient to satisfy the physical craving of the individual and that the prices of meat prevailing at the time the data was obtained prevented the individuals in these classes of families from having a balanced ration. Since the time at which these budgetary investigations were made (1907 and 1909) the prices of meats have shown considerable advances.

Housing Conditions

No general statement of the "typical" dwellings of wage-earners can be made because of the lack of uniformity in type and of the large variety of types of houses in different localities. It seems to be true, however, that the predominant type of dwelling occupied by wage-earners in industrial communities is the single-family house.[3]

The single-family house is more uniformly the type in Southern localities, altho it is general in numerous small and middle-size communities in the East and Middle West. Even in some large cities, such as Philadelphia, Baltimore, Pittsburgh and Detroit, the single-family house, it has been found, is distinctly predominant, and is largely represented in Cleveland, Milwaukee, Minneapolis and St. Paul. In the New England industrial localities three-family houses are most common, while the two-family house is typical also of New England towns and of Brooklyn, Newark, Paterson, Cleveland, Pittsburgh, Milwaukee, Duluth, Minneapolis, St. Paul and St. Louis. The tenement housing from four to a dozen or twenty or more families is typical of New York and Chicago, altho it is to be found in almost every large city and frequently in the smaller industrial centers. In isolated mining and industrial communities the cheap "shack" of one or two rooms is a familiar type.

The wage-earner's family is more likely to be found

[3] This generalization is based upon the British Board of Trade's data for 90,000 working-class dwellings in 27 American cities and towns and upon the result of numerous surveys and investigations.

living in a four-room apartment or house than in an apartment or house of another size, according to the most comprehensive data.[4]

The evidence seems to indicate conclusively that the size of the apartment or house is smaller in the large city than in the purely industrial community. The native (white) and older immigrant wage-earner's family in the latter type of locality occupies usually a five- or six-room house, while the newer immigrant household is most frequently found in a three- or four-room house or apartment.

The significance of these facts as to the type and size of house or apartment which the wage-earner's family occupies is that, taking the normal family of five persons—husband, wife and three children—as a natural standard, the typical dwelling occupied by it is none too large. A smaller house would be a distinct deprivation of facilities not simply for ordinary comfort, but in many cases for health and decency. It is of the utmost importance, therefore, to take into consideration also the conditions of congestion and living arrangements which have been so frequently and graphically described in numerous housing surveys and investigations that they are familiar to every student of industrial conditions.

Taking conditions in typical industrial localities as

[4] The Immigration Commission's investigation of over 17,000 families in industrial localities shows that the average number of rooms was 4.34, and of 10,400 families in large cities 3.70 rooms. The British Board of Trade data for 90,000 working-class dwellings showed that the predominant types were four and five rooms. The British investigation included, however, perhaps a disproportionate number of highly paid workers.

representative, the average number of persons per apartment or house in wage-earners' homes has been found to be nearly six persons, and the average number of rooms per family group is slightly over four, according to the best information available.[5] There were thus about 1.30 persons to a room and 2.50 to a sleeping room. In nearly 77 per cent. of over 17,000 households in purely industrial cities there were found to be two or more persons to a sleeping room, in 37 per cent. there were found to be three or more persons, and in nearly 15 per cent. there were found to be four or more persons to a sleeping room. In nearly a third of these households every room except one was used for sleeping purposes and in about the same proportion every room except two were so used. Thus in nearly two-thirds of the households the family did not have more than two rooms available for exclusively other purposes than sleeping.

Congestion is appreciably greater among the newer immigrant workers than among the native-born and older immigrants. This was clearly brought out by the investigations made by the Immigration Commission, from whose report the following tabulation gives statistics for native-born households, and the households of the principal older and newer immigrant races. Not only do the newer immigrants live in smaller houses and apartments, and have a larger number of persons per room, but in nearly half of their house-

[5] These statements are based on data secured by the Federal Immigration for 17,141 households exclusive of congested districts in larger cities.

holds all but one room is used for sleeping purposes, thus making available only one room for cooking, eating, and general living purposes:

Race of Household Head	Average rooms per household	Number of persons per room	Per cent. of households having 2 or more persons per room	Per cent. of households using all except one room for sleeping	Average number of boarders or lodgers per household.[b]
Native (white)[a]	5.37	.77	2.6	6.2	.17
English	5.17	.87	3.9	10.0	.24
German.. ..	5.11	1.02	9.3	11.5	.51
Scotch	5.02	1.08	12.6	10.4	.13
Irish..	5.37	1.02	4.9	10.4	.25
Croatian.. ..	4.01	1.88	43.8	46.8	3.80
Hebrew	3.94	1.36	21.6	28.8	.26
S. Italian ..	3.84	1.47	30.9	45.7	1.03
N. Italian ..	3.89	1.42	23.4	41.7	1.18
Bulgarian ..	2.41	2.53	78.4[c]	24.5	1.01
Magyar	3.75	1.72	40.6	50.2	2.43
Roumanian ..	4.84	2.57	74.0	54.5	9.53
Russian.. ..	3.35	1.77	42.7	64.0	2.20
Servian	4.88	1.97	55.1	56.5	6.72
Slovak	3.62	1.62	36.8	47.8	1.16
Polish	3.82	1.58	33.9	43.4	1.46

a Of native father.
b Based on total number of households.
c Not including 1 household not reporting number of rooms.
Compiled from reports of the Immigration Commission, Vol. 19, pp. 153-163.

These conditions were found by the Immigration Commission in the smaller industrial centers in manufacturing and mining sections of the country. The same authority gives the results of an investigation of over 10,000 households in the congested districts of New York City, Philadelphia, Chicago, Boston, Cleveland, Buffalo and Milwaukee. Here congestion may be expected in greater intensity, yet the investigation

showed conclusively that even in the worst sections it was not much worse than in the purely industrial centers. The average number of persons per room was found to be only 1.34, and per sleeping room 2.32. The greatest overcrowding was in Boston, with 1.44 persons per room, and the lowest in Milwaukee, with 1.14, the ratio for other cities being as follows: Philadelphia, 1.41; Cleveland, 1.40; New York, 1.39; Buffalo, 1.33, and Chicago, 1.26. A greater congestion was also found among new immigrant households than among native and older immigrants. Congestion is greatly aggravated by the prevalence of the system of keeping boarders or lodgers and of rooming groups, especially among the newer immigrant races in industrial communities. This condition will be referred to under the head of living arrangements.

Living Arrangements

That approximately a third of the workingmen's families in industrial localities and slightly less than that proportion of workingmen's families in large population centers are unable to maintain a separate family existence, appears to be a warrantable conclusion from a study of nearly 30,000 typical households.[6] Among the families of native (white) American workers, the proportion is about 10 or 12 per cent., while among the newer immigrant households the proportion is very much greater. These are households composed either of fami-

[6] This estimate is based chiefly on the Federal Immigration Commission's investigation of over 27,000 households and on data obtained by several governmental and other inquiries and surveys.

lies and boarders or lodgers, or of groups of single workers or workers separated from their families. A large number of wage-earners, of course, are adrift from their families.

The character of the living arangements of wage-workers is determined by several important factors which do not ordinarily affect the living arrangements of the rest of the population. Chief among these is the permanency of residence. Any cause that results in the mobility of the labor supply, and in irregularity of employment and unemployment, is a factor of vital importance to the wage-worker's household. In permanent industrial localities, where a labor force is more or less constantly maintained in connection with an established plant or plants, the tendency is toward the family group; in temporary localities, such as lumber, construction, or harvest camps, or in transportation, there is little opportunity for family life.

Of equal importance, probably, is the conjugal condition of the workers, and the factors affecting marriage among them. Married workers having their families with them have "household" arrangements; unmarried male or female workers, or married male workers without their families with them, must either board or lodge with families, or live in boarding and lodging groups either of their own forming or conducted by others where no family is the nucleus. The "family household" is naturally found in permanent industrial communities; the non-family group systems exist chiefly

in temporary camps, but are also found among the newer immigrant workers in permanent communities. Of great importance, too, is the factor of the economic status of the worker. The less he has to spend on subsistence, either voluntarily or otherwise, the larger are the groups, whether they be in family households or in non-family boarding and lodging establishments. The higher and more regular the wage, the greater is the tendency toward separate and distinct family life, except in the case of newer immigrants who do not expect to become permanent residents of this country and strive to save, even at the expense of decent and healthful standards of living. The lower the income the greater is the necessity for the family to add to it by taking boarders and lodgers and to destroy its unity of life. Finally, social habits and customs have much to do with living arrangements, for wide differences are found among workers of different races. As the result of these factors, there are several deviations from the normal household arrangement where the family maintains an undisturbed unity of life, *viz.*: (1) Two or more families are found to occupy the same apartment or single house. (2) Families are compelled to admit boarders or lodgers, either (a) maintaining a distinct family economy to which boarders or lodgers merely contribute in board and rent payments, or (b) surrendering the family system of household management entirely and living in a cooperative or copartnership arrangement with the boarders or lodg-

ers. (3) Rooming and boarding groups in which no family exists, but which are composed entirely of detached workers. The relative prevalence of the single-family household as well as of the other types of living arrangements are perhaps fairly indicated in the following tabulation:

Nativity of Head of Household	Total number of households	Per Cent. "Family" Households: With neither boarders nor lodgers — Single family	Two or more families living together	Total	With boarders or lodgers — With boarders	With lodgers only	Total	Total family households	Per cent. "group" households
Native (white) ..	1,866	88	1	89	8	2	10	99	1
Foreign-born	15,127	62	3	65	12	20	32	97	3
Total	17,141	65	2	67	11	19	30	97	3

Compiled from reports of the Immigration Commission, Vol. 19, pp. 287-288.

The above statistics for households having foreign-born heads do not, however, portray actual conditions because of the difference in living arrangements of older and newer immigrant workers. The older immigrant households (Scotch, English, Irish, German, Welsh, French, etc.) are of the same type as the native American and should properly be included with the native-born workers. The type of living arrangements among workers of other races is indicated by the following statistics compiled from the reports of the Immigration Commission for households of the principal newer immigrant races living in permanent manufacturing and mining localities:

Race of Household Head	Per cent. of all households keeping boarders or lodgers	Average number of boarders or lodgers per household [7]
Croatian	59.5	6.39
Hebrew	18.4	1.40
South Italian	33.5	3.06
North Italian	34.2	3.47
Bulgarian	12.2	8.29
Magyar	53.6	4.53
Roumanian	77.8	12.23
Russian	54.7	4.02
Servian	92.8	7.25
Slovak	36.0	3.22
Polish	48.4	3.01

The large proportion of newer immigrant households which keep boarders and lodgers, and the large average number of boarders and lodgers in these households, is due to a practise peculiar to households of the races named above. This is the "boarding boss system." Under this arrangement a married immigrant or his wife, or a single man, is the head of the household, which is composed of the members of the family of the head and from two to twenty or more boarders or lodgers. In some of these households the congestion is so great that half a dozen day-work men will occupy a sleeping room at night and another half dozen night-work men will occupy it during the day. This is due, of course, to the fact that a very large proportion of the immigrants of these races are males who are either single or who have left their wives in the "old country." This condition is set forth by the following statistics taken in consideration with the above tabulation:

[7] Based on number of households keeping boarders and lodgers.

Race of Household Head	Average number of boarders or lodgers per household[8]	Per cent. of: Number of household who are male[9]	Per cent. of: Male members of household who are married[10]	Per cent. of: Married males whose wives are abroad
Croatian	3.80	58.1	78.6	59.3
Hebrew	.26	51.0	82.0	11.0
S. Italian	1.03	58.5	70.9	36.9
N. Italian	1.18	55.2	78.4	36.6
Bulgarian	1.01	96.8	74.2	90.0
Magyar	2.43	58.2	77.0	43.3
Roumanian	9.53	61.8	76.4	73.9
Russian	2.20	57.0	73.8	45.5
Servian	6.72	69.9	62.2	64.5
Slovak	1.16	53.7	87.4	34.2
Polish	1.46	55.5	73.5	23.0

The American type of family household arrangement is so familiar that it does not need description here; it is mainly a question of the adequacy of the husband's or breadwinner's income to meet the family's expenses, and thus maintain its standard of living. The newer immigrant household, however, possesses these marked peculiarities, due not only to the inadequacy of a breadwinner's earnings to maintain a standard similar to that existing in native and older immigrant households, but also to racial habits and standards and to the desire to save money to be sent or taken abroad. The newer immigrant household is thus of two types: (1) The household conducted by a family with one or more children and boarders or lodgers, and (2) the

[8] Based on all households.
[9] Including children.
[10] Twenty years of age or over.

boarding or lodging group composed entirely of males, occasionally with a hired woman to do the housework.

The large majority of women workers live with their families, either as wives or as daughters. It seems to be generally true that only in the larger cities is there any considerable proportion of them "adrift" [11]; in the industrial towns they are contributors to family income or board and lodge at home, being either partially or wholly self-supporting. In some large cities the following proportions of women adrift, of the total number for whom data were secured, are given by the Federal Report on Woman and Child Wage-Earners [12]:

City	Per cent. of women workers "adrift" employed in	
	Retail stores	Factories, mills, etc.
Boston	35.8	25.3
Chicago	20.3	16.4
Minneapolis and St. Paul	27.7	18.5
New York	7.9	13.0
Philadelphia	22.2	18.0
St. Louis	21.0	21.6
Total	26.2	15.2

In those cases where women workers are members of their own families their living arrangements are those of the family or home, but among women "adrift" four types of living arrangements were found:

(1) Those keeping house, composed of women who rent a house or tenement where they have their own

[11] The term "adrift" was used by the Federal Woman and Child Wage-Earners' report to mean boarding and lodging women wage-earners as well as those whose so-called homes were "only impending wreckage." Vol. v, p. 12.

[12] Vol. v, p. 15.

private entrance and in which they live independently of other people.

(2) Those living in private families as boarders or lodgers where not more than three outsiders live.

(3) Those living in regular boarding or lodging houses where more than three outsiders live.

(4) Those living in organized boarding houses financed by some social organization for philanthropic purposes.

The distribution of "adrift" women workers, according to this classification, were found to differ considerably in the various cities named, as shown in the following table:

City	Per cent. of total workers interviewed			
	Keeping house	Living with private family	Living in boarding or lodging houses	Living in organized boarding houses [13]
Boston	14.6	17.4	56.6	11.4
Chicago	4.6	61.8	27.7	5.9
Minneapolis and St. Paul	2.4	22.7	58.3	16.6
New York	40.8	38.5	1.6	19.1
Philadelphia	24.6	49.8	25.6	....
St. Louis	15.3	23.0	47.4	14.3
Total	16.6	39.6	33.7	10.1

Ownership of Homes

Approximately three-fourths of American-born wage-earners' families live in rented houses, according to most accurate general sources of information.[14]

[13] Number and per cent. not applicable to whole group of wage-earning women, as special canvass was made.

[14] These statistics are based on the results of the Federal Immigration Commission's investigation and the British Board of Trade's inquiry into the cost of living in American towns in 1909, and such local data as are available.

With the exception of English-born wage-earners, the percentage of home-owning heads of families from northern Europe, including Ireland and Scotland, is considerably higher than for American-born, ranging from 30 to 70 per cent. Even the Croatian, North Italian, and Slovenian immigrants have a greater percentage of home-owning heads of families than have the native-born white workers in industrial communities. The most complete available data indicate that less than 15 per cent. of Greek, Hebrew, Portuguese, Rumanian, Ruthenian, Russian, Servian, Syrian, South Italian and Magyar immigrant workers in industrial localities are home owners. With very few exceptions as to race, the great majority of workingmen's families in the United States are not owners of their own homes.

In some older industrial localities where certain industries have been long established and have not caused any very marked changes in the character of the supply of labor they employ, the percentage of home-owning workers is higher than this average, especially in localities where there is a large proportion of better-paid skilled workers. In Brockton, Mass., for example, the number of wage-earners' families living in their own homes is unusually high.[15] In an industrial community in the Middle West, where the predominant industry is the manufacture of agricultural implements and of vehicles and where there are unusually strong inducements in wages for permanent residence, it was found that

[15] British Board of Trade—Cost of Living in American Towns, p. 124.

nearly half of the workers owned their homes.[16] On the other hand, in localities where there is a predominance of unskilled, low-paid labor, and therefore of a shifting population, home ownership is comparatively rare. In Paterson, N. J., for example, it was found that only about a fifth of the silk workers' families owned their homes. Only 12 per cent. of the native American families were home-owners, and if the Dutch and German families be excepted, the home-owning percentage would be considerably lower than a fifth.[17] Practically all of the textile-mill employees in Lawrence, Mass., were found to be living in rented tenements, according to an investigation by the Federal Bureau of Labor,[18] and the supply of detached houses was very small. Approximately 90 per cent. of the steel workers' families in the Birmingham, Ala., district were found to live in rented houses, altho the prevailing type of house was the single, detached variety.[19] In isolated mining communities and in communities where a single plant affords practically the entire demand for labor, the proportion of home-owning families is low since the houses are owned by the employer. There appears to be a marked tendency, however, for employers to sell their company houses as fast as they can, but the employees who purchase are chiefly the better-paid skilled workers, whose permanency of residence is of distinct advantage to their employers.

[16] Reports of the Immigration Commission, Vol. 14, p. 599.
[17] Woman and Child Wage-Earners, Vol iv, p. 310.
[18] Report on Strike of Textile Workers in Lawrence, Mass., 1912, pp. 23-26.
[19] Reports of the Immigration Commission, Vol. 9, p. 232.

In the large cities the percentage of home-owning workingmen's families is much lower than in purely industrial localities. The Federal Immigration Commission's investigation of over 10,000 households in the congested districts of some large cities, disclosed the fact that only about one-tenth of the workers' families lived in their own homes. In New York tenement districts only one-half of 1 per cent. owned their homes, while in Milwaukee, where the tenement type of house is not so prevalent, about 19 per cent. were home-owners, and in Buffalo 17.5 per cent. Even in Chicago over 16 per cent. of the families investigated were found to be living in their own homes. On the other hand, only 4.4 per cent. were home-owners in Boston, and but 7.4 per cent. in Philadelphia, where the smaller house so largely prevails, had purchased homes.

Community Environment

That the wage-worker and his family live in a community environment unmistakably less healthful and less attractive, more depressing, possessing fewer conveniences, and beyond question worse from nearly every point of view, than the average citizen engaged in other pursuits, is a fact so well recognized as to need no elaboration here. With rare exceptions, the industrial worker does not enjoy the same public advantages and opportunities that are afforded to others. The old idea of class distinction persists to such an extent that this condition is accepted by the average

citizen as a matter of course, and the belief unhappily still prevails that the wage-earner should take for granted that his expectations of even community benefits ought to be smaller than those of other individuals.

The result is an unmistakable tendency toward the segregation of wage-earners from the other population in almost every locality where there is a considerable proportion not engaged in industrial occupations. In every city is to be found the "residential" section contrasted with the "working-class" section,—wards where the low-paid workers live—the "slums" and the tenements. Practically every investigation of the environment of wage-earners has called attention to the lack of water and sewage facilities, unkempt streets, absence of paving, or other tardy public improvements, and the general contrast in appearance between those sections occupied by wage-earners' families and the so-called "residential" sections. In nearly every industrial community whose population is composed almost entirely of wage-earners there is a marked difference between those streets on which the unskilled workers live and those on which the better-paid workers have their homes. Since the newer immigration has come so largely into the unskilled occupations, this difference is more plainly evident. Practically all industrial localities now have their "little Italies" and their "Hungary hollows."

There are two types of immigrant communities, both of which, in view of the extent to which the newer immigrant has entered into the population of industrial

localities in the East and Middle West, are of extreme significance in connection with the general question of community environment. The first is the community which has affixt itself to already existing urban populations. "Foreign communities of this character," according to the conclusions stated in a recent study of immigrants in industry,[20] "are as numerous as the older industrial towns and centers of the country. The textile manufacturing centers of New England and the Middle States, such as Fall River, Lowell and New Bedford, Massachusetts; Manchester, New Hampshire; Providence, Rhode Island, and Paterson, New Jersey; cities in which other industries are located, such as paper manufacturing in Holyoke and boot and shoe factories in Haverhill and Lynn, Massachusetts; hardware, cutlery and jewelry, located in New Britain and Meriden, Connecticut; or leather finishing and currying, as in Wilmington Delaware; clothing manufacturing, as in Rochester; collars and cuffs in Troy; hosiery and knit goods, as in Cohoes and Utica, New York; oil refining in Bayonne, New Jersey; or cities engaged in diversified manufacturing, as Passaic and Newark, New Jersey—all these have colonies or sections populated by recent immigrants.

"The same condition of affairs is found in the iron and steel, glass, and other older manufacturing cities and towns of New York, Pennsylvania and the Middle West. As representative types in this class in connection with the manufacture of glass, Tarentum, Penn-

[20] Jenks and Lauck, The Immigration Problem, 3d Edition, pp. 68-69.

sylvania; Morgantown, West Virginia, and Steubenville and Rossford, Ohio. may be mentioned; and as typical iron and steel localities, Steelton and Johnstown, Pennsylvania; Youngstown, Ohio, and South Chicago and DeKalb, Illinois. Pittsburgh, or the Pittsburgh District, is practically made up of industrial towns or cities engaged in the manufacture of iron and steel, glass and allied products, each of which has an immigrant colony or section composed of households of wage-earners of recent immigration."

The other type is the more or less isolated community which has grown up around a plant or a mine since the supply of newer immigrant labor has become available. It is a familiar type in the coal-producing areas of Pennsylvania, Virginia, West Virginia, Alabama, Ohio, Indiana, Colorado, and in the iron-ore and copper-mining districts of Minnesota and Michigan. It is found in connection with steel plants, glass manufacture and other establishments located away from previously existing urban centers.

In both of these modern types of industrial communities the environment is in marked contrast to communities populated by families engaged in non-industrial pursuits. The attractive environment is a rare exception. A depressing absence of homelike neighborhoods, a general air of unkemptness and of public carelessness, the prevalence of a hideous sameness in houses that are built with as great a scorn of architectural art as is possible to conceive, the frequency of dirt and filth in the streets and alleys, the lack of trees and grass—

these are some of the signs by which a "working-class town" or a "working-class section" is so easily recognizable as to have become typical of the community environment in which the wage-worker and his family must live, in spite of some notable reforms that are being made by some employers and municipalities.

In accounting for these conditions of unfavorable environment the cause usually assigned is the difference in the economic status of the wage-earning population and of the rest of the population of any community. Healthful environment, attractive surroundings and the possession of conveniences, it is commonly argued, are purchasable commodities. Generations of individuals unaccustomed to better conditions, it is alleged, have had their effect in removing the desire for them, and in establishing a lower standard of environment just as they have established a low standard of living within the household. Undemocratic as this explanation of those differences in environment, which are under the control of the public, may seem, it must be accepted as true, at least in part. To a large degree, in spite of the more enlightened community spirit which has appeared in most non-industrial and in some industrial localities, conditions that ought to be provided by the community for all its citizens, regardless of their inequalities of economic status, are still available only to those who are able to purchase them and to secure them by individual influence, or through the collective power of "influential citizens."

There are two principal reasons for this condition

of inequality. Both are social in their character rather than economic. One arises from a conception of property representation in the administration of municipal government. Because the wealthy citizen pays more taxes than the poor citizen it is assumed that he should enjoy a proportionately greater share of the public conveniences and provisions for community well-being. Hence it is that the average industrial locality spends more on the "residential" streets and sections than on the "working-class" neighborhoods, that the sewers and water facilities are extended toward "poorer" sections last, and that provisions for the public health are often undertaken by municipalities, not so much because the workingmen and their families have a right to be safeguarded, as for the purpose of "protecting" the "better class" from infection and contagion from their poorer neighbors. In other words, it is the exemplification in public administration of a class distinction, whatever may be the underlying causes that have established this distinction.

The other may be termed the segregation of the wage-earners, particularly the unskilled and low-paid, from the community itself. This segregation is not simply a matter of location, which is also determined by the factors of rent, convenience to places of work, and the like, but is social (in its broad sense) and political. It is hardly necessary to enlarge on this often-observed condition, beyond pointing out that the influx into industry of the southern and eastern European immigrants has greatly intensified it. Their low standards

of culture and of living, their isolation from the native-born population because of their inability to speak English and to associate with their American neighbors, and the influence of their own racial and religious institutions, customs and habits in maintaining racial and denominational distinctions, are segregating factors, augmented by an attitude of indifference and oftentimes prejudice on the part of the native-born population. There has thus grown up in almost every industrial locality east of the Mississippi River and north of the Ohio and Potomac rivers a more or less isolated immigrant section with institutions, customs, businesses and standards of morals and living peculiar to the predominant race or races composing its population. The people of these sections have little or no voice in the community. As the Immigration Commission discovered, they are exploited not only by leaders of their own race, but by natives, and are regarded as legitimate tools for unscrupulous ward-heelers in our politically backward municipalities.

This segregation of the wage-earners, particularly the unskilled, low-paid worker, has meant nothing less than his disbarment from participation in the affairs of the community, politically and otherwise. He has been unable to exercise, and has not known how to exercise, a voice in the matters that affect his own environment, and has been practically at the complete mercy of the rest of the local population of the community. In those isolated localities where the employer is the owner of all the property, and where there is no "public," he has been

hardly less his own master. Even should he be disposed or moved to exercise his political rights, it has been found that more than often he has been intimidated by his employer or the local politicians who are in league with his employer. Unorganized and without bargaining power, unled except by those who seek to exploit him, and untrained and incapable of initiative, without the opportunity even if he knew how to grasp it, and so involved in the fight for a bare subsistence that he can not see beyond the end of a day, the average unskilled wage-worker is peculiarly the ward of the community in which he lives. The character of his environment depends almost entirely upon the democracy of spirit, humaneness of view, and civic standards of those who now rule the American industrial municipalities.

VIII

THE WAGE-EARNER'S HEALTH

Among the most important and significant developments of the last decade have been the evidences of a growing realization on the part of the economist as well as the physician and sanitarian, and of the employer of labor as well as the labor leader and social worker, that the health of the wage-earner and his family is peculiarly involved in certain economic and social conditions.

These conditions render the problem of disease prevention among wage-workers and their families more complex and difficult than among the population in general. Disease has been found to be incident to the demands made upon the worker's strength and vitality by certain occupations and working conditions. Irregular employment has been discovered to impair the efficiency of workers, to result in worry and neurasthenia, and to intensify their economic disadvantage. Unhealthful conditions of living, such as inadequate and innutritious diet, insanitary and congested housing, and unfavorable community environment in industrial districts and localities, are suffered to a greater extent by the wage-working population than by other social or

economic groups. The necessity for the employment of women under modern factory conditions, particularly of mothers, has been found to be distinctly prejudicial to their health as well as to the health of their children. Poverty and disease, according to abundant evidence only now being collected and stated in a scientific and convincing manner, are close partners. The maintenance of a healthful standard of living is possible only for those who have the financial means, as well as the knowledge, for the avoidance of the conditions, the environment, and the habits that cause ill health. In a broad, yet in a fundamental sense, health has been a luxury to the wage-earner because it has been a purchasable thing.

The new conception of health as an economic "necessity" for efficient work and living, has a significance so far-reaching as to be epochal in the history of social philosophy. Out of it have already appeared legislation for healthful housing, workmen's compensation laws, and a nation-wide movement for "safety first"; the intelligent and scientific study of occupational disease hazards; physical examination and supervision of workers by employing establishments; the installation of sanitary conveniences and safeguards in factories and employer-owned dwellings for workers; and an unmistakable movement for governmental health-insurance of wage-earners. Of perhaps even greater significance than these is the growing tendency to displace charity treatment and relief of the poverty-ridden sick by scientific and well-organized prevention of disease and systematic methods

for health promotion through cooperation of employers and employees with public agencies. A definite stimulus to the collection of facts as to the causes of ill health among wage-earners is being given, and as the conditions are laid bare new directions for more effective disease prevention are being pointed out. The fact that the national Public Health Service has undertaken the study of economic conditions in relation to health is a significant indication of the new point of view.

To appreciate fully the condition of labor in American industry one must be given a view of the factors that affect the physical efficiency and well-being of wage-earners and their families. Altho attention has been directed in a scientific manner only in recent years to the problem of the wage-earner's health, sufficient data have been obtained to indicate in a general way what these factors are and to measure, with an approximate degree of accuracy, their influence. It is the purpose in the following pages to present some of the more definite and authoritative of these data.[1]

The Prevalence of Sickness Among Wage-Earners

An unemployment survey made by the Metropolitan Life Insurance Company in conjunction with the Bureau of Labor Statistics of the Federal Government, during 1915, and covering over a million wage-earners in

[1] The material in this chapter is drawn largely from the collection of data relating to the health of wage-workers and their families made by B. S. Warren, Surgeon, and Edgar Sydenstricker, Public Health Statistician, United States Public Health Service, published in their recent bulletin on "Health Insurance—Its Relation to the Public Health." (United States Public Health Service: Public Health Bulletin No. 76, March, 1916, pp. 6-37.)

selected cities of the United States, developed the fact that 11 per cent. of the unemployment was caused by sickness or accident disability. Over 1 per cent. (1.2) of all the wage-earners canvassed were found to be unable to retain their employment on account of illness. This rate was very similar to the disability records of members of trade unions in the states of New York and Massachusetts, as furnished by unemployment reports for a series of years in each state.[2] A sickness survey of 7,638 families during one week of September, 1916, in Rochester, New York, made by the Metropolitan Life Insurance Company, afforded a more comprehensive and detailed picture of the extent of ill health among the industrial population of a single locality. Of the 34,490 persons in the families surveyed, 798 were sick, or 2.3 per cent. The following tabulation classifies the sick persons by the extent of disability and by sex:[3]

Extent of Disability	Persons		Males		Females	
	Number	Per cent. of total	Number	Per cent. of total	Number	Per cent. of total
All classes	798	100.0	356	100.0	442	100.0
Unable to work	661	82.8	297	83.4	364	82.4
In bed	220	27.6	88	24.7	132	29.9
At home	135	16.9	47	13.2	88	19.9
In hospital	85	10.7	41	11.5	44	10.0
Up and about	441	55.2	209	58.7	232	52.5
Able to work	70	8.8	32	9.0	38	8.6
Ability to work not specified	67	8.4	27	7.6	40	9.0

[2] A collection of some of the available statistics of disability has been made by B. S. Warren, Surgeon, and Edgar Sydenstricker, Public Health Statistician, United States Public Health Service, in a recent paper on "Statistics of Disability" in the Public Health Reports of the United States Public Health Service for April 23, 1916.

[3] A Community Sickness Survey of Rochester, New York, by Lee K. Frankel, Ph.D., Sixth Vice-President, and Louis K. Dublin, Ph.D., Statistician, of the Metropolitan Life Insurance Company.

Over 19 per cent. of the sick persons were found to have been ill between one year and three years, and nearly 27 per cent. had been disabled by sickness for over three years. The annual loss in wages from sickness of male employees alone in Rochester was estimated on the basis of this survey to be nearly $1,300,000, in addition to the cost of medical care, drugs, nursing and the less measurable but probably greater cost of loss in efficiency and the effects on the families of disabled wage-earners.

The Greater Prevalence of Disease Among Industrial Workers.—The constantly increasing mass of evidence on the question of national health, as well as of the health of local populations, points to the conclusion that the industrial worker is more subject to sickness and has a smaller chance of living the normal span of years than the worker in other pursuits and than other members of the population. It suggests that, as the result of these factors, the "human scrap heap of industry" is not an imagined thing, but is a very real and constant loss of industrial efficiency and waste of life and health that ought to be prevented.

Mortality statistics in the United States indicate that there is a marked difference in the prevalence of certain wasteful causes of death between occupied males in agricultural pursuits and in industrial trades and callings. A recent analysis of the mortality statistics of 210,507 males engaged in 140 occupations in the registration area of the United States exhibits in a striking

manner the percentages for the year 1909, as follows:[4]

Mortality Among Occupied Males	Percentage of all deaths	
	In agricultural pursuits	In 131 trades and callings
Deaths from preventable causes[5] ..	27.4	43.0
Deaths from degenerative diseases[6] (under 70 years of age)	26.5	31.2
Total deaths after 70 years of age	35.9	13.4

These statistics indicate, as Dr. Hayhurst points out, that the agriculturist in the United States "stands a one-in-three chance of reaching old age (70 years), while the others' probability is but a little better than one in eight," and that "occupied persons, other than agriculturists, suffer an enormous mortality (figures show 74 per cent.) from well-recognized preventable and prematurely degenerative diseases."

Mortality records obtained from entirely different sources by the Life Extension Institute in the United States furnish a striking corroboration of the above

[4] E. R. Hayhurst, M. D.: The Prevalence of Occupational Factors in Disease, *American Journal of Public Health*, Vol. 5 (June, 1915), p. 539. "Occupied Males" in the above table include professional callings, officials and proprietors, those engaged in domestic and personal services as well as workers in trade and transportation, manufacturing and mechanical pursuits, miners, quarrymen, etc., composing a total of 140 chief occupations, nine of which are agricultural. Only the registration area is included. As Wilbur points out (*Am. Journ. Public Health*, Dec., 1913, p. 1258), where another or previous occupation could have been a factor, it amounts to less than 1 per cent. of the cases.

[5] Deaths from "preventable causes" include typhoid fever, pulmonary tuberculosis, pneumonia (under 70 years), alcohol, lead poisoning, other occupational poisonings, accidents and injuries, rheumatism, bronchitis, suicide, accidental poisonings, pleurisy and hernia. For rheumatism, bronchitis, pleurisy and hernia only such deaths as have occurred under 70 years are included. *Ibid*, p. 539, note.

[6] Deaths from "degenerative diseases" include cancer, diabetes, apoplexy, heart disease, "other circulatory diseases" (4,858), asthma, cirrhosis of the liver "other liver diseases" (880), and Bright's Disease. There remain in the Census classification 27,105 deaths from peritonitis, appendicitis, "other respiratory, digestive, nervous" and "all other causes," a large percentage of which were undoubtedly preventable or prematurely degenerative, but which are not taken into consideration in the classification given above. *Ibid*, p. 539, note.

analysis of the Census registration area statistics. In a recent address, President E. E. Rittenhouse of the Life Extension Institute asserted that the mortality records indicated a marked decline in the power of American workers to withstand the conditions of modern life. This was manifested in the extraordinary increase in the death rate from the breaking down of the heart, arteries, kidneys, and the nervous and digestive systems, which diseases, he stated, are reaching down into middle life and apparently increasing there and at all ages. Of the 410,000 lives annually destroyed by these "old age" diseases, he pointed out, 60,000 occur under the age of 40; 105,000 occur between the ages of 40 and 60, and 245,000 above the age of 60. Virtually all of these diseases, as Mr. Rittenhouse remarked, should come in the group above 60 years, and these slowly developing afflictions are not only reducing the working, productive period of life, but also lower the capacity of the individual, and are responsible in large measure for accidents, damaged machines, spoiled goods, and other costly errors. The records, he stated, show that in thirty years the mortality from these diseases has nearly doubled. In a group of over 5,000,000 men and boy workers increases in the death rate were noted as follows: Apoplexy and nervous system, 19 per cent.; heart, 29 per cent.; kidney and urinary system, 43 per cent.; liver and digestive system, 34 per cent.

It is almost impossible to estimate the economic loss to the individual or to industry or to the nation of this

greater prevalence of ill health among the industrial population. A number of estimates have been hazarded. The most recent, and perhaps the most conservative, of these estimates was that based upon the study of the records of nearly a million wage-earners and made for the Federal Commission on Industrial Relations.[7] This estimate was that the average wage-earner loses about nine days on account of sickness every year. While the more complete statistics that are now being compiled may cause some revision of this estimate, it is interesting to note that it very nearly coincides with the German and English figures for over 26,000,000 industrial workers, which show an average of eight to nine days of illness per year through a number of years. The same estimate, putting the daily wage at $2 and the cost of medical attention at $1 per day, places the annual loss to 30,000,000 wage-earners on account of the nine days of sickness at over $800,000,000. This leaves out of consideration the losses due to death and to decrease in efficiency which follows illness. It also leaves out of consideration the effect upon the family when the breadwinner is disabled.

These figures, impressive as they are, but inadequately afford a true conception of the problem of sickness among wage-earners; they merely give an idea of its magnitude. To be properly appreciated they must be interpreted in terms of human suffering. "Any one living or moving among the lower grades of the wage-earners," to borrow the graphic language of Sidney

[7] Final Report of the Commission on Industrial Relations, 1915.

and Beatrice Webb, "becomes only too painfully aware of the perpetual lack of health, and frequent disabling sickness all around him. He sees infants and children, men and women, alike suffering from what seems to be an unending round of ailments of one sort or another . . . to be periodically broken into by serious disease, and cut short by premature death." [8] Sickness is so indissolubly bound up with the wage-worker's bad housing and poor and insufficient diet, the restriction of his natural desires for normal self-expression, the worry, mental depression, discouragement, and destroyed efficiency that accompany impaired health and economic uncertainty and disadvantage, that it can not be comprehended fully by the presentation of cold statistics.

Among the more important economic factors which affect the health of the wage-working population may be mentioned the following:

1. The occupational hazards of disease.
2. Irregularity of employment.
3. Unhealthful conditions of living.
4. The employment of women, particularly married women, in industry under modern conditions of work.

Occupational Disease Hazards

There is no longer any doubt that conditions in modern industry are responsible for a considerable proportion of the workingman's ill health. How far other conditions, such as character of diet and home and

[8] The Prevention of Destitution, p. 16.

community environment, are predisposing or aggravating factors in "occupational" diseases, is impossible of exact determination. There are, however, certain specific substances and conditions in places of employment and certain conditions of employment which undoubtedly have harmful effects upon the health of many workers. These facts are becoming widely recognized in the enactment of legislation intended to decrease these health hazards.

A large number of diseases have been traced more or less directly to the occupation. The tendency, however, in recent years has been to define these diseases as "industrial" rather than as "occupational." For, as defined in a memorial to the President of the United States, by a committee of experts in 1910, industrial diseases are the "morbid results of occupational activity traceable to specific causes and labor conditions, and followed by more or less extended incapacity for work." [9] It is not practicable to give here a list of the industrial diseases or to enumerate the harmful substances or conditions which cause them; but the following brief outline of a classification according to special causes suggests some idea of their extent and prevalence: [10]

A. Workers in harmful substances: Metals, dusts, gases, vapors, and fumes.

B. Workers under harmful conditions: Heat, moisture, cold, confined air (bad ventilation), overcrowding,

[9] American Labor Legislation Review, Vol. i, No. 1, p. 125.

[10] U. S. Public Health Service: Public Health Bulletin 76, p. 8.

comprest air, excessive light, strains of muscles, nerves, or special senses, and the like.

Harmful Substances: Metals, dusts, gases, vapors, and fumes.—The character and to some degree the extent of the disease hazard caused by poisons, gases, fumes, dusts, etc., in certain occupations, have been shown in several important investigations made in recent years by the Federal and State Governments and in recent contributions to the literature on occupational diseases and hazards.[11] Phosphorus, lead, mercury, and arsenic poisonings are but familiar examples; there are so many diseases that have been found to result from poisons which affect workers in scores of occupations that "there is scarcely any one line of modern manufacture which is free from the dangers of industrial poisoning." [12]

Harmful Conditions in Places of Employment.—In spite of the movement for better conditions in factories, stores, and mills, it appears from recent reports that a

[11] Reference is especially made to the following literature on the subject of occupational diseases which treat of specific occupations and occupational hazards: Henry Japp: Caisson Disease and Its Prevention, Transactions of the Fifteenth International Congress on Hygiene and Demography, Vol. iii, Part II, p. 639; John B. Andrews: Phosphorus Poisoning in the Match Industry of the United States, U. S. Bureau of Labor Bulletin No. 86; Mrs. L. W. Bates: Mercury Poisoning in the Industries of New York City; C. T. Graham-Rogers: Ninth Annual Report of the New York Commissioner of Labor, Appendix II, pp. 68-91 (calico print industry and potteries), and Tenth Annual Report of the New York Commissioner of Labor, Appendix II, pp. 62-111 (phosphorus match industry); Emery R. Hayhurst: Report of Illinois Commission on Occupational Diseases, 1911, pp. 49-84 (investigation of brass manufacturing industry in Chicago); Alice Hamilton: White Lead Industry in the United States, U. S. Bureau of Labor Bulletin No. 95, pp. 189-259; Report on Investigations of the Lead Troubles in Illinois from the Hygienic Standpoint, in report of the Illinois Commission on Occupational Diseases, 1911, pp. 21-49; Lead Poisoning in the Smelting and Refining of Lead, U. S. Bureau of Labor Statistics Bulletin No. 141.

[12] I. M. Rubinow: Social Insurance, p. 212. See also Bulletins of the United States Bureau of Labor Statistics, Nos. 86 and 100, for groups of industrial poisons.

very large proportion of the industrial establishments in this country are not free from unhygienic conditions. The report of the New York Factory Investigating Commission of its extensive examination of establishments in the State of New York pointed out that while in many of the establishments the conditions were found to be excellent and the managements exercised a proper care over the health of their employees, "unfortunately such model establishments and such enlightened employers are in the minority," and "investigations in a great number of factories throughout the State have revealed much that is deplorable.[13] The sanitary survey of the State of Louisiana, so far as its results have been published, indicated that over 50 per cent. of all of the establishments in the State were in "poor" or "bad" condition.[13a] The recent survey of industrial health hazards in establishments in Ohio found that exposure to certain hazards classified as "bad," from the standpoint of sanitation and hygiene, existed in a very considerable proportion of establishments.[14] The follow-

[13] New York Factory Investigating Commission; Second Report, 1913, Vol. ii, Report of Dr. George M. Price, Director of Investigation, p. 416. Dr. Price said:

"Unfortunately, such model establishments and such enlightened employers are in the minority, as by far the greater number of employers have not yet awakened to the importance of improving conditions of labor. Investigations in a great number of factories throughout the State have revealed much that is deplorable. In the production of commodities, great economy must needs be practised as a matter of course. But there is a tendency on the part of many employers to economize not only in matters of legitimate expense, but also in space, light, air, and certain other safeguards to the health and lives of the workers. Such false economy inevitably injures the employer and imperils the health and lives of his employees."

[13a] Louisiana State Board of Health; Quarterly Bulletin, Mar. 1, 1914.

[14] E. R. Hayhurst, M. D.: A Survey of Industrial Health Hazards and Occupational Diseases in Ohio, Ohio State Board of Health, 1915, p. 118. Included in "infections," in the above recapitulation, are particularly the dangers from promiscuous spitting upon floors in work-places by persons who are employed without physical examination and who work without medical supervision (p. 119).

ing recapitulation of various health hazards shows the percentage of work places where the exposure was classified as "bad:"

Specific Health Hazard	Per cent. of work places where exposure to health hazard was found to be "bad"	Specific Health Hazard	Per cent. of work places where exposure to health hazard was found to be "bad"
Dust	16	Heat	4
Dirt	21	Cold	2
Dampness	1	Infections (communicable diseases)	41
Darkness	10	Poisons	19
Air	18		

Sanitary surveys made for the Federal Commission on Industrial Relations by the United States Public Health Service in 10 typical industries in seven different States showed that conditions were about the same as those reported for New York, Louisiana, and Ohio.[15] These conditions are probably typical of most industrial localities in the United States, and would seem to indicate that much remains to be done before the industrial disease hazards due to these conditions are reduced to a minimum.

Working Conditions Which Cause Excessive Fatigue.—In addition to industrial poisons and other insanitary conditions in places of work, there are certain conditions in modern industry which cause excessive fatigue. Among these may be mentioned long hours, the piecework system, and the increasing use of machine methods. Work performed by any of the body cells pro-

[15] The 10 industries surveyed were in the following States: Massachusetts, New Jersey, Pennsylvania, Indiana, Illinois, Michigan and Minnesota. U. S. Public Health Service: Public Health Bulletin No. 76, p. 10.

duces waste products and other changes in those cells. Up to a certain limit work, with the resulting cell changes, is beneficial and improves the physical condition; but when work is excessive, too prolonged, or too fast, the waste products begin to accumulate, the cells become exhausted, the physiologic changes fail to occur, and if not properly rested the cells are damaged.

It is becoming more and more clearly recognized that fatigue is a health hazard in industry. This is evidenced by a series of court decisions in the last few years upholding the constitutionality of laws prohibiting excessive hours of work for women in industry. The basis of these decisions was the effects of long hours upon health.[16] There is also a marked tendency on the part of employers to realize these effects[17] and to adopt a shorter working day and on the part of labor unions to insist upon an eight-hour day and a six-day-week standard.

[16] The statement of Justice Ingraham of the Court of Appeals of New York, in the case of The People *v.* The Charles Schweinler Press explained in some detail the reason why the court reversed a former decision on a similar case. This reason was stated to be the fact that in the former decision no definite facts as to the effects of night work upon the health of women were presented, whereas in the latter case the court had before it the results of various investigations and opinions of medical and other experts. See also Supreme Court of the United States, October term, 1907, Curt Miller *v.* State of Oregon; Ritchie & Company *v.* Wayman, 244 Illinois, 509 (1910). For a review of judicial decisions dealing with hours of labor for adult men, see Bulletin of the New York State Department of Labor, No. 46, March, 1911.

[17] An opinion as to these effects is seen in the report of the committee of stockholders of the United States Steel Corporation, consising of five prominent stockholders, submitted in April, 1912, which stated: "Whether viewed from the physical, social, or moral point of view, we believe that the seven-day week is detrimental to those engaged in it. . . . We are of the opinion that a 12-hour day of labor followed continuously by any group of men for any considerable number of years means a decreasing of the efficiency and lessening of the vigor and virility of such men." Quoted from original report by the United States Department of Commerce and Labor in Report on Conditions of Employment in the Iron and Steel Industry, Vol. III, p. 161. (S. Doc. No. 110, 62d Cong., 1st sess.)

The overstrain incident to the piece-work system has been found by a number of investigations to be deleterious to the workers' health. Dr. A. J. Lanza, who made several physical examinations of shovelers in the zinc mines of the Joplin district, Missouri, states:

"They had shoveled from two to six years; some had started when 18 or 19 years of age. Now they could shovel only 35 or 40 cans, where formerly they could shovel 60 to 70 and upward. Hard, constant work had broken these men down, so that at the ages of 22 to 30 they were already on the down grade. . . . Working thus at their full earning capacity day in and day out, it is not surprizing that, with the added exposure to rock dust, these men should contract tuberculosis to an excessive degree. Especially must this be true when they start in while under age and before their bodies have fully developed." [18]

The physical examinations of garment workers in New York City conducted by the United States Public Health Service, showed that overstrain was more prevalent in occupations where wages are paid on a piece basis than in occupations where wages are paid on a week or other time basis.[19]

With the increased use of machinery another serious health hazard has appeared. This is the so-called "new strain" in modern industrial methods. In the opinion

[18] U. S. Bureau of Mines, Technical Paper 105: Pulmonary Diseases Among Miners in the Joplin District, Missouri, and its Relation to Rock Dust in the Mines. A Preliminary Report, by A. J. Lanza and Edwin Higgins, 1915, pp. 38-39.

[19] U. S. Public Health Service, Public Health Bulletin No. 71, May, 1915; Studies in Vocational Diseases—I. The Health of Garment Workers, by J. W. Schereschewsky, Surgeon U. S. Public Health Service, p. 79.

of many observers and authorities,[20] it is the fatiguing effects upon the worker of mechanical processes and of the increasingly mechanical character of his work. The effects of the greater speed made possible by machine methods are frequently aggravated by the speeding-up practises in many establishments. The extreme specialization in the modern factory has resulted in a monotony of attention and muscular action that imposes a condition of permanent strain upon one set of nerve centers or muscles. Noise and mechanical rhythm have been found to produce injurious effects upon the nervous system and special senses.

These occupational hazards are causing disease; just how much, investigators have been unable to determine, but sufficient research has been made to know that they are prominent factors. The extent of their influence is indicated by the morbidity and mortality rates among workers according to occupation.

Morbidity According to Occupation.—All records of morbidity according to occupation indicate that the health hazard is greater in some occupations than in others. Occupation is recognized as one of the three variables by life insurance companies in the United States in fixing their rates for health insurance; the other variables are age and sex. The records of European sickness insurance societies and systems afford abundant evidence of the occupational differences in health hazard. Official records for 1914 of the time

[20] Goldmark: Fatigue and Efficiency, Part I, pp. 43-89, and Part II, pp. 26-52. In this volume are collected much of the principal authoritative data from European, British, and American publications bearing on this point.

lost on account of sickness by over 12,000 male office employees of the Federal Government in Washington show an average of 4.82 days. This rate is in sharp contrast to an average of 11.6 days lost during 1913 on account of sickness by employees of a large railroad system in the United States, whose occupations were very different from those of the Government employees. Sickness statistics for 5,600 employees of a large steel company in Ohio illustrate the differences in health hazard, according to occupation, in a single establishment. The average of all its employees sick during a period of 38 months was 8.2 per cent., as compared with 2.37 per cent. of the electrical workers and 13.4 per cent. of the blast-furnace workers.[21]

Mortality According to Occupation.—Occupational health hazards are indicated not only by statistics of morbidity, but also by statistics of mortality. The German and Austrian records already referred to fur-

[21] E. R. Hayhurst, M. D.: A Survey of Industrial Health Hazards and Occupational Diseases in Ohio, the Ohio State Board of Health, 1915, p. 58.
The statistics for some of the principal occupations in this steel plant are summarized in the following tabulation. It should be noted that accidents and venereal diseases were excluded from the statistics of sickness, as well as all cases where the illness was less than a week in duration. Sanitary conditions in this plant were pronounced to be exceptionally good.

AVERAGE PER CENT. OF EMPLOYEES OF A STEEL MILL SICK DURING A PERIOD OF THREE YEARS, 1911-1913, BY OCCUPATIONS: MALES

Departments	Average per cent. sick	Departments	Average per cent. sick
Electrical	2.37	Pipe mill	9.18
Bricklayers	3.66	Shelf mills	9.56
Open hearth	4.81	Mechanical	10.09
Yard labor	6.13	Blast furnaces	13.41

nish ample evidence of greater mortality in certain occupations than in others. For the purpose of comparing occupational health hazards the tuberculosis death rate is often used. It is probably the best single indicator we have for this purpose. The census mortality statistics for 1909 showed that for all occupations reported, tuberculosis caused 14.8 per cent. of all deaths among males, as compared with 6.6 per cent. of all deaths among farmers, planters, and overseers, 28.6 per cent. among marble and stone cutters, and 29.2 per cent. among printers, lithographers, and pressmen. These statistics do not vary greatly from the actuarial experience of the Prudential Life Insurance Company,[22] as summarized in the tabulation on p. 331.

Irregularity of Employment and Health

The actual effects of irregular employment upon the health of workers, as observed by physicians and students of industrial conditions, are so familiar that they need not be discust here at any length. The very fact that the income of a worker is uncertain has been found to be a cause of impaired physical efficiency. The detailed examination of male garment workers in New York City, by Schereschewsky, afforded the basis for the following conclusion:[23]

"During the busy season the workers drive themselves

[22] Frederick L. Hoffman: Industrial Accidents and Trade Diseases in the United States. Transactions of the Fifteenth International Congress on Hygiene and Demography, Washington, D. C., 1912, Vol. i, Part II, p. 802.

[23] J. W. Schereschewsky: Some Physical Characteristics of Male Garment Workers of the Cloak and Suit Trades, Based Upon 2,107 Physical Examinations Made in New York, N. Y. *American Journal of Public Health,* July, 1915.

PROPORTIONATE MORTALITY FROM TUBERCULOSIS OF THE LUNGS, 1907-1910, OF OCCUPIED MALES IN CERTAIN OCCUPATIONS, BY SPECIFIED AGE PERIODS.

Occupation	Per cent.		
	15 years and over	15 to 24 years	25 to 44 years
All occupied males	21.4	34.3	37.7
Farmers	9.9	26.9	32.1
Tailors	15.2	52.0	47.5
Carpenters	15.6	32.0	38.4
Masons	17.5	31.1	39.0
Bakers	19.2	24.1	37.2
Iron and steel workers	19.3	27.9	29.7
Painters	23.3	34.7	39.2
Cigar makers	26.3	54.8	45.0
Machinists	27.0	39.3	40.0
Textile workers	27.3	38.6	45.5
Bartenders	30.7	34.1	35.7
Plumbers	32.6	32.8	41.7
Glass workers	32.9	38.5	48.1
Stone workers	33.5	33.3	47.8
Clerks	35.5	42.4	44.8
Printers	37.7	48.4	48.6

at top speed in order to earn as much money as possible, to tide them over the slack seasons, while, during the dull periods, they are without sufficient occupation to keep up their interest. Such conditions are productive of considerable mental stress, the worker during the busy season overdriving himself and spending the slack season in wondering if work will be forthcoming in the future. This condition of affairs is reflected in the relatively large number of operators found to be distinctly neurasthenic or of neurasthenic tendency."

Similar conclusions were indicated by Schwab's investigation of garment workers in St. Louis.[24]

[24] Sidney L. Schwab: Neurasthenia Among Garment Workers. American Labor Legislation Review (January, 1911), p. 27.

The effects of irregular employment are not limited to the physical impairment caused by worry and periodic overdriving. The lessened opportunity to earn wages, caused by irregular employment or by physical disability, means a smaller income and therefore a lessened ability to maintain a healthful standard of living. The earnings of workers whose rates of pay would be adequate to provide for healthful conditions of living if they could work steadily, are often so reduced by irregular employment that a condition of poverty is the result. Data obtained in connection with the physical examination of male garment workers in New York City, to which reference has just been made, clearly indicated "that the greatest number of poorly nourished, anemic, tuberculous workers in an extremely seasonal industry were in that group composed of the lowest paid and the least regularly employed." [24a] In many instances the unemployed worker is forced into a lower level of occupation. The unemployed worker is likely to take any job that he can get, in order to provide for the bare necessities of life, and the tendency is for him to drift into the "floating"

[24a] Health of Garment Workers—The Relation of Economic Status to Health. By B. S. Warren, Surgeon, and Edgar Sydenstricker, Public Health Statistician, U. S. Public Health Service, with an introduction by J. W. Schereschewsky, Surgeon, U. S. Public Health Service. Public Health Reports, May 26, 1916, p. 1305. (Reprint No. 341, p. 10.) "It is evident," say these authors, "that the competition among workers in this industry is great, and that a process of selection of those who work more regularly than others is continually in process. How far efficiency, as measured by physical condition of the worker, plays a part can not, of course be definitely stated. Nor can it be determined with any degree of exactness whether inefficiency is more of a cause than an effect of the unemployment of any individual worker. The fact, however, is not without significance that the workers in the lowest income group were at the same time in poorer physical condition and were less regularly employed than the workers in the higher income groups."

or "casual" labor class. The casual laborers at the docks in New York City are composed largely of workers who have gradually lost their economic status in industry, and dock workers themselves continue to slip down in the industrial scale until they reach the class of "shenangoes," the down-and-out longshoremen who are capable of only light work, and who finally become burdens upon public and private charity. According to testimony before the United States Commission on Industrial Relations, most of the 7,000 applicants for work at the San Francisco Cooperative Employment Bureau were of the casual labor class, and one-half of the total number of applicants were found to be incapacitated for work, on account of poor nutrition, disease, and exposure.[25] The records of many investigators of the unemployed abound with similar instances.

Where the wage-worker is the breadwinner of a family, the loss of his earnings occasioned by irregular employment, or by his drop into a poorer-paid occupation, can not but have serious effects upon the health of the family. Either the family is forced into that class whose income is insufficient to maintain a healthful standard of living, or the wife and children are compelled to become wage-earners in order to supplement the family income. Either of these conditions has serious consequences from the standpoint of health.

[25] Testimony of H. R. Bogart, secretary of the Associated Charities of San Francisco, before the United States Commission on Industrial Relations, public hearings on the seasonal labor problem in California.

Unhealthful Living Conditions

Under existing conditions, the reason for unhealthful modes of living is largely an economic one. Since these conditions have been found to be intimately connected with the incidence of disease, they constitute a factor in the problem of the wage-worker's health, whose significance is plainly evident. It is worth while to review some of the more significant facts, in order to illustrate this phase of the problem.

Inadequate Diet.—The frequent lack of a properly balanced and adequate diet among wage-earners and their families is a factor entering into the problem of their health which has probably been noted by nearly every physician and health and charity worker. The recent findings of Goldberger [26] show clearly that an unbalanced diet causes pellagra, a disease which is found more frequently among low-paid workers than among the well-to-do. Furthermore, while diet is not a specific factor in the causation of tuberculosis, as in pellagra, the undernourished prove easy victims to the tubercle bacillus. A committee of the American Association for Labor Legislation stated: [27]

"With insufficient wages, food is cut down below the level of subsistence. In order to meet expenses for lodging and clothing, working women reduce their diet to the lowest possible point. Health inevitably suffers."

[26] See Public Health Reports of the U. S. Public Health Service, October and November, 1915.

[27] Constitutional amendments relating to labor legislation and brief in their defense, submitted to the constitutional convention of New York State, by a committee organized by the American Association for Labor Legislation, 1915.

Nearly every investigation by minimum wage commissions has shown that a very large proportion of the independent women workers in all sections of the country are unable to provide enough food, and the right kind of food, on the wages they receive, and proper subsistence has been thoroughly established as one of the fundamental considerations in the fixing of minimum wages in a number of states.

The effect of the rise in the prices of foods has undoubtedly tended to render it more difficult for the low paid wage-worker's family to obtain sufficient animal protein food. Budgetary studies have shown that the smaller the family income the less is the relative importance of meat and other animal protein food in the diet. Statistics of food prices show that the increase in prices of meats and other animal protein foods has been over 50 per cent. greater than in the case of fats or starch foods since 1900.

Bad Housing Conditions.—Unfavorable conditions prevailing in the household of wage-earners constitute another important phase of the problem in the environment of the wage-working population. The absence of sufficient light; the lack of ventilation facilities or, when adequate facilities exist, the continuously closed rooms to secure warmth, because of the inability to provide sufficient fuel; the accumulation of filth; the prevalence of insanitary toilets; the necessity for overcrowding, in order to reduce the rent to a figure which will permit the household to make ends meet—these are fairly familiar facts.

It seems to be the general experience that most of these unhealthful conditions tend to be present where overcrowding exists, and the extent to which they prevail is perhaps best suggested by statistics of congestion among workingmen and their families.[28] It is apparent that in a household of six or more people living in less than four rooms, the conditions described by the term "bad housing" are likely to be found.

European statistics on the relation of tuberculosis to congestion are confirmed by recent studies in New York City. A survey of the Washington street district[29] showed that 57 per cent. of the families lived in two rooms and 26 per cent. in three rooms, many of these families having lodgers. The death rate from tuberculosis in this district in 1913 was between 500 and 600 per 100,000, or about four times the rate generally prevalent. In one block in this district 63 cases of tuberculosis were found in 1913. Another study of 217 working-class families in New York City reported almost unbelievable conditions. In his description and summary of this investigation, Fishberg said:[30]

"These families consisted of 1,369 persons, of whom 1,129 lived at "home" in 717 rooms and slept in 658 beds. That is about two to a bed and 1.57 to a room, including kitchens. Of the 274 tuberculous persons only 112 had separate rooms and only 138 had separate

[28] For data relating to congestion, see chapter on Living Conditions.

[29] A Survey of the Washington Street District of New York City, 1914, pp. 56-57.

[30] Maurice Fishberg: A Study of the Child in the Tuberculosis Milieu, Arch. Pediat., February, 1914.

beds. Some consumptive mothers slept on chairs or on the kitchen floors."

Depressing as this picture is, Fishberg's observation has been that such a state of affairs is not unusual in industrial centers in the United States.

The bad conditions that prevail in lodging houses have been found to be peculiarly conducive to the spread of disease, particularly of tuberculosis. In nearly all industrial communities to which workers of the newer immigration have come, the boarding and lodging house is a familiar institution. There the foreign laborers, who are unmarried, or who have left their families in their native land, crowd together. The following description of lodging-house conditions in East Youngstown, Ohio, is believed to be typical [31] of conditions in the immigrant districts of industrial communities: [32]

"By reason of the tendency of workmen of the same race to lodge in the same section or town, the lodging houses exhibited many instances of extreme overcrowding. Thus, in one case, there were 23 lodgers in a four-room house, and it was by no means uncommon to find a single room occupied by from three to twelve workers. The lodgers, for the most part, slept two in a bed. In some of the lodging houses, where the men

[31] The reports of the Federal Immigration Commission (Vols. 8-20) contain a large number of community studies in which descriptions of the immigrant lodging houses appear that depict even worse conditions than shown in the above.

[32] United States Public Health Service: Public Health Reports, March 6, 1914: A Report on the Prevalence of Trachoma among Steel-Mill Workers in East Youngstown, Ohio, by Surg. J. W. Schereschewsky, United States Public Health Service, pp. 565-566.

work on both 'day and night turns,' the occupation of the beds is almost continuous, the night men taking during the day the places of those sleeping at night in the beds. The beds themselves were usually old and in filthy condition, destitute of bed linen, the covers consisting of old bedquilts. The washing facilities consisted of buckets, or hand basins, which were used in common by all the occupants of a room. The houses themselves were for the most part built close together, so that the rooms were dark. Very few of the rooms were susceptible of thorough ventilation. Indeed, but little advantage would have been taken of such a provision, as all windows were found carefully closed and the temperature was still further raised by small stoves."

Effects of Unfavorable Community Environment Upon Health.—In determining the effects of community conditions upon health, it is difficult to state in exact figures just how much of the higher morbidity and mortality rates among the wage-working population is due to community environment and how much to other conditions. But it is clear that community environment has direct detrimental effects on health. This is suggested by the results of Dr. Antonio Stella's intensive study of six tenement blocks in New York City. There it was found that, while the death rate at that time for the city as a whole was 18.3 per thousand and 51.5 for children under five years of age, it varied in these particular blocks from 22.3 to 24.9 per thousand for all ages and from 59.2 to 92.2 per thousand for children under five years of age. An investi-

gation of three "working-class" districts in Cleveland, one typical of the best community conditions, one of average conditions and one of the worst conditions, found that the tuberculosis rate per thousand in 1912 was 35 for the worst, 23 for the average, and 5 for the best. The districts were rated according to the usual standards of sanitation. The findings of a committee of the American Iron and Steel Institute, which visited a number of industrial towns, are of special significance in this connection. Dr. Thomas Darlington, secretary of the welfare committee of the institute, in commenting upon these findings, said:[33]

"A study of the causes of death shows that, in general, but 4 per cent. die from old age, 4 per cent. more die from violence, and 92 per cent. die from disease. Of this last great group, nearly one-half are due to diseases of environment; that is, to diseases which . . . are wholly preventable. Taking 15 of the principal towns visited by the institute, excluding the large cities, the death rate averages 19 per 1,000—easily double what it should be, and at least one-third more than the rate of some cities of larger size."

The effect of unfavorable community conditions upon health and the extent of unhealthful community conditions have been pictured by an investigation in Johnstown, Pa., of infant mortality.[34] As a previous Fed-

[33] "Health and Efficiency," an address delivered at the annual banquet of the American Iron and Steel Institute, held in New York City, May 17, 1912. Published in pamphlet form.

[34] U. S. Department of Labor, Children's Bureau: Infant Mortality: Results of a Field Study in Johnstown, Pa., based on births in one calendar year, by Emma Duke, 1915. See chapter on Relation of Infant Mortality to Environment, Neighborhood Incidents, pp. 14-20.

eral investigation had shown,[35] and as corroborated by the Children's Bureau's inquiry, the line between the sections of the locality occupied by wage-workers (composed chiefly of foreign-born workers and their families) and other sections, was very sharply drawn. The native sections, populated by skilled American workers, business men and others on a higher economic level, were ignorant of conditions prevailing in the working-class sections and, for the most part, indifferent to them except when they became "nuisances" or menaces to their own health. This indifference was markedly shown in the lack of community care of the poorer sections, where bad sewerage, insufficient water connections, and infrequent attention to streets, were prevalent characteristics. Infant mortality rates were ascertained according to wards of the city, and were found to vary from 50.0 to 200.0. In the distinctively workingmen's wards, where insanitary conditions were most prevalent, the infant mortality rates were found to range from 156.0 to 271.0. In the other wards, where sanitary conditions were noticeably better, the infant mortality rates ranged from 50.0 to 125.0, the average for the entire city being 134.0. An investigation into the milk supply of Johnstown, by the Federal Bureau of Animal Industry, in 1913, ascertained that the milk sold was "very poor," as shown by bacterial counts and inspection, and that the condition was due to the

[35] U. S. Immigration Commission Reports: Immigrants in Industries, Vol. viii, p. 436. Conditions as found in this community study by the Immigration Commission were stated to be practically the same by the Children's Bureau at the time of its investigation (U. S. Public Health Service: Public Health Bulletin 76, p. 27, note).

total absence of municipal milk inspection. The city dairies, which supplied milk to the poorer sections, had an average score of only 26.84 out of a possible 100, and were described in the Bureau's report as "vile from a sanitary standpoint." On the other hand, the average scores for other sources of the milk supply, while unsatisfactory, were in every instance higher than the city dairies. Furthermore, it was found that the methods of distributing the milk from city dairies were particularly inadequate and dangerous, the milk was sold warm, and the purchasers rarely possest means of refrigeration in their homes.[36]

Johnstown has been found to be a typical industrial community in the Eastern section of the United States, and conditions of community environment there have been described by various authorities as fairly illustrative of manufacturing localities [37] where the industrial development of the last twenty or thirty years, the coming in of large numbers of the newer immigrant races in response to the increased demand for unskilled labor, and the rapid growth of population, have outstript the community's realization of the need for a corresponding development of public welfare provisions and administration. Along with the lack of proper community supervision of health, there were found to

[36] This report is published as Appendix III to the Federal Children's Bureau report on infant mortality referred to above. Since the report was made, a citizens' campaign for clean milk has been conducted with beneficial results. The unfavorable milk situation, however, existed at the times the Federal Immigration Commission and the Federal Children's Bureau made their investigations.

[37] Jenks and Lauck: The Immigration Problem, 3d ed., p. 72. See also Reports of the U. S. Immigration Commission, Vol. viii, p. 237.

exist insanitary and congested housing conditions, long and severe hours of labor, and a generally low level of family income for a great majority of the households of wage-earners.[38] The high rate of mortality among the children of wage-workers is but one indication of the extent of the sickness that such conditions cause among the wage-earning population, but it suggests the prevalence of ill health and the preventable deaths in the many industrial communities of which Johnstown is only a type.

The Employment of Women

The factor of sex renders the problem of the health of the wage-working population more acute and complex. In view of the generally accepted fact that in the population as a whole the female mortality rate is less than the male, it would seem reasonable to assume that, excluding confinements, the female morbidity rate is not greater than the male. Among women employed as wage-workers, however, these conditions are apparently reversed.

Perry's statistics of cotton-mill operatives and statistics of the Leipzig, Austrian, and Italian insurance funds show that the mortality rate of female wage-earners under 40 years of age is higher than that of male wage-earners in the same age group. Not until the age of 40 is passed does the usual excess of mortality among males assert itself.[39]

[38] Reports of the Immigration Commission, *supra cit.*, pp. 329-490; also sections of Children's Bureau report on Johnstown dealing with the economic status of the fathers of children included in its investigation, pp. 45-49.

[39] The following tabulation combines in brief form the statistics referred to above:

These statistics are corroborated by the Metropolitan Life Insurance Company's Sickness Survey of Rochester, N. Y., to which reference has been made, and by official records of sick leave taken by male and female government clerks in Washington, D. C. The Roches-

EXCESS OF FEMALE OVER MALE DEATH RATE PER 100,000 ACCORDING TO AGE GROUP

Age Group	United States cotton-mill operatives *a*	Leipzig fund *b*	Austrian fund *c*	Italian societies *d*	United States registration area, United States Census, 1909 *e*
15-19	27	..	440	..	*58
20-24	46	33	420	..	*109
25-29	353	30	400	320	
30-34	260	109	260	450	*112
35-39	590	70	160	30	
40-44	737	*184	*60	80	*209
45-49	...	*400	*490	*270	
50-54	...	*428	*490	*80	*450
55-59	...	*803	*410	*630	
60-64	...	*928	*870	...	*702

* Denotes excess of male over female death rate.

a Perry; *supra cit.*, p. 75. The American cotton-mill workers' statistics indicate in this instance that the proportion of women over 25 years of age engaged in the mills is larger than the usual proportion of women wage-workers over that age in American or European industries in general.

b Leipzig Local Sick Fund, statistics for 1887 to 1905, Twenty-Third Annual Report of the United States Commissioner of Labor: Workmen's Insurance and Compensation Systems in Europe, Vol. i, p. 1269.

c The age groups are "15½ to 20½," "over 20½ to 25½," etc. See Amtliche Nachrichten betr. Unfall- und Krankenversicherung, 1893, and the Twenty-Third Annual Report of the Commissioner of Labor, *sup. cit.*, p. 295.

d Journal of the Royal Statistical Society, Vol. lv, London, 1892: Morbidity and Mortality according to Occupation, by Dr. Jacques Bertillon, quoting statistics of the Statistical Office of Italy. See also Goldmark: Fatigue and Efficiency, Part II, p. 24.

e L. I. Dublin, Statistician Metropolitan Life Insurance Co.: The Insurability of Women. An Address Before American Life Convention, Aug. 19, 1913, p. 1.

The differences in actual excess of female death rates in the statistics above may be due to differences in occupation and conditions of living. The fact of an excess, however, appears common to all countries.

ter survey tended to confirm the Austrian sickness insurance records on the point that sickness of women workers is greater than that of men workers, even if disability due to confinement is excluded. European statistics clearly indicate that women in the same occupations as men are sick not only more frequently, but for longer periods.

While the greater health hazard to wage-earning women is admitted to be due primarily to the difference in sex, other special conditions tend to increase the hazard to wage-earning women. Among these may be mentioned the precariousness of their employment and the additional work imposed by household duties. The precariousness of their employment is a constant spur to them to go beyond the limit of their strength, particularly where they are employed on piece-work. The household duties of wage-earning women, especially of working mothers, impose double work. The workday of the wage-earning mother begins considerably earlier than the opening of the gates of the mill or factory or of the doors of the store in which she is employed, and is not ended when she comes home. She can not afford, even if she appreciates its importance, to stay at home for a proper period of rest before and after confinement.

Poverty and Disease

It must be evident that underlying all the economic factors in the problem of the wage-workers' health that have been mentioned in the foregoing pages—the

lack of freedom of choice of healthful places of living and of healthful occupations and places of work, the inadequacy and irregularity of the earnings of heads of workingmen's families and the necessity for the earning of wages by children and mothers—is the fact of poverty. These factors are but proximate causes. For if any one phase of the movement for better health which has recently taken so great hold upon popular attention is brought home to the individual, it is the fact that, under existing methods, disease prevention and health promotion are expensive. And, conversely, the most striking and fundamental fact that the investigator of the conditions of disease has found is its great prevalence among those who are unable to purchase health.

The conditions that cause disease are largely due to the lack of financial means for their removal. Even ignorance, that great obstacle to health, is, after all, a more intimate companion of poverty than of financial competence or of wealth. Except in so far as they are supplied by the public for the entire community or by employers for all their employees, the preventive methods that scientific research has given are largely unavailable for the poor unless the poor become paupers. Certainly the greatest benefits of modern medical and surgical science are beyond the reach of the low-paid worker and his family unless they place themselves in the position of mendicants, and already the average physician is too heavily burdened with "charity patients." Bad housing, inadequate diet, child labor, the

employment of mothers in mills, factories and stores, the uncertainty of family income, inability to pay for proper medical attendance and care, alcoholism, the restriction of the natural desires for normal self-expression, discouragement and mental depression, physical deterioration, frequent or constant ill health—these are but results, so far as the poorly paid class of wage-workers and their families are concerned, of their poverty. The worst housing conditions, the greatest degree of overcrowding, the most insanitary environment, the most innutritious and impure food, the most wretched surroundings, are suffered by those who can not afford better conditions of living because the worst conditions are the cheapest. And the least efficient workers and weakest individuals are the ones to whom there is no choice but the most dangerous places in which to live and attempt to rear their already handicapped children.

In all countries the partnership of poverty and disease has been seen.[40] Strikingly positive statistics have just been published on the relation of the physical condition of male workers in the cloak, suit, and skirt industry in New York City to their economic status. While a careful inquiry into the effects of occupation upon the health of these workers indicated that "no vocational diseases peculiar to garment workers" ex-

[40] Levasseur found that the death rate in the poorer sections of Paris was 31.3, as contrasted with 16.2 for "middle" class sections and 13.4 in the richest sections. Rowntree, in his study of York, England, using a similar classification of sections of the city, found that the death rate in the "poorest" section was 27.8, in the "middle" class section 20.7, and in the "highest" 13.5. La Population Francaise, 1889-1902, Vol. ii, p. 403. B. S. Rowntree: Poverty; A Study in Town Life, 1902, p. 205.

isted (aside from the general effects of sedentary occupations), marked differences were found between the physical condition of workers in higher income groups and that of workers in the lower income groups. The results of such an analysis of the statistics of physical condition are summarized in the following table:[41]

HEALTH AND INCOME OF MALE GARMENT WORKERS

Annual Earnings	Total number	Per cent.		
		Poorly nourished	Anemic	Tuberculous
Under $500..	372	25.00	9.94	5.64
$500-$699	566	15.02	5.65	5.30
$700 and over	456	12.72	4.42	.44

All of the workers included in the foregoing statistics were heads of families, and it is extremely interesting to note that the per cent. of mortality among their children was 11.65 in the highest income group as contrasted with 20.69 in the lowest income group. This difference in the child mortality rate closely corroborates the results of several studies of infant mortality. The recent investigations of the Federal Children's Bureau, to which references have already been made, into the mortality of infants in families of all economic strata, found that those families whose income was insufficient to provide for adequate subsistence and healthful conditions of living showed a much higher infant mortality rate than families with adequate income. In Johnstown, Pa., the general infant

[41] Health of Garment Workers—The Relation of Economic Status to Health. *Sup. cit.*, pp. 1303-1304 (Reprint No. 341, pp. 5-9). The Talquist scale was used in making determinations of anemia, all workers with hemoglobin percentages under 80 being classed as anemic.

mortality rate was 134.7, but in families where the father earned less than $521 a year, or less than $10 a week, the infant mortality rate was 255.7. This rate was three times as high as in families where the father earned $1,200 a year or more.[42] In Montclair, N. J., it was found that the infant mortality rate in families where the income was less than $12 a week was more than twice as high as in families where the income was $23 or more a week. An investigation of infant mortality in Fall River, Mass., showed that a higher rate was prevalent in the families of the low-paid textile workers than in other families.[43] The exact prevalence of sickness, as indicated by mortality rates, whether it be two persons sick for each death, as Farr estimated,[44] or some other ratio, is of less importance than the generally accepted fact, as illustrated by the foregoing statistics, that sickness and death occur more frequently in families with insufficient income than in families with adequate subsistence. This can be interpreted in but one way, that the hazard of disease and the effects of ill health are much greater among those who are the least able to guard against disease and to provide for the cost of sickness.

[42] *Supra cit.*, p. 45.

[43] Louis I. Dublin: Infant Mortality in Fall River, Mass.—A Survey of the Mortality Among 833 Infants Born in June, July and August, 1913. American Statistical Association Publications, xiv., pp. 505-520. Mr. Dublin says: "The literature, and especially the German, is replete with trustworthy references to the strong positive correlation between low family income and high infant mortality. For it is the factor of income which determines the number of rooms occupied, their location in the city, the amount and character of the food, the need for supplementary work by the mother outside the home, and other considerations which bear directly upon infant mortality (p. 518)."

[44] William Farr: Vital Statistics. Farr estimated that to one annual death two persons are continually suffering from severe illness and three persons are ill enough to require some medical relief (pp. 512-513).

In no instance, perhaps, has this condition been more clearly and forcibly illustrated than in the campaign against tuberculosis. Poverty has been found, under existing methods of prevention and medical care, to be the most formidable obstacle. The handicap of insanitary environment and congested living conditions in the homes and lodging places of the low-paid wage-earners, to which reference has already been made, is one which it seems almost impossible to overcome with present weapons. To this is added the further handicap that the individual who must live under such conditions and be exposed to extraordinary hazards of contagion is usually weakened by the lack of adequate diet, strain from overwork or worry from irregular work, the effects of bad air and alcoholism, and his power of resistance is diminished. His chances of escaping or throwing off the disease are slight in comparison with the chances of the individual who is financially able to live in more favorable surroundings and to maintain his physical vigor. Unless he becomes a recipient of public or private charity, he stands a very small chance of being able to receive proper treatment after he has contracted tuberculosis. The children of the low-paid workers are very likely to have for their heritage not only physiologic poverty, but also the financial poverty that goes with their physiologic handicap. Aside from the chances of postnatal infection from tuberculous mothers, the children of tuberculous parents inherit a general weakness and diminished resistance, and when placed in a tuberculous environment, have been found to contract the

disease very easily. But tuberculous parents are not the only reason for the physiologic poverty of children. "A badly nourished mother or father, living and working under insanitary conditions, overworked and underfed, will as surely transmit a physiologic poverty to their offspring as any tuberculous parent," is Knopf's statement of the relationship of poverty to the disease. "A general debility of either one or both parents, especially when it is added to an insufficient income to support the family so that there is want of food, clothing, or proper housing, is sure to result in the physiologic poverty of children." [45] And to these conditions should be added, as Knopf points out, that in large families of the poor it is usually the later children who contract tuberculosis most easily, not only because the parents are less vigorous, but because the pressure of subsistence is greater and the necessity for living in cheaper and less healthful surroundings is intensified.

These observations, which have been made by numbers of physicians and tuberculosis workers, are substantiated by all authoritative statistics on the relation of poverty to tuberculosis. The Charity Organization Society of New York City found that in one winter, of 2,200 destitute families investigated, 35 per cent. were found to be destitute on account of tuberculosis and 25 per cent. on account of other diseases. The experience of the New York Society for Improving the

[45] S. A. Knopf, M. D.: Tuberculosis as a Cause and Result of Poverty. A paper read before the American Medical Association, June, 1914. *Journal of the American Medical Association*, lxiii, pp. 1720-1721 (November, 1914).

Conditions of the Poor has been similar. "The result of the low wage, insufficient to supply the food, clothing and shelter necessary to healthful existence, undoubtedly meant that the bodies of the men, women and children were exposed to diseases that especially prey on underfed, poorly clothed and badly housed people," said the report of the Society's family welfare department; "tuberculosis cut short the lives of 40 per cent. of these men." [46] The work of the home hospital experiment of the Society definitely recognized poverty as one of the conditions which had to be eradicated before the spread of the disease within a family could be checked. "Every family which has entered the hospital during the last two years was forced into poverty by the disease," says the Society's report, "some being partially dependent, others wholly destitute. To treat the social ills, therefore, has been quite as important as to cure the disease, for without rehabilitation the family would continue to live an abnormal life, economically and socially, and consequently the disease would be more liable to occur." [47] Two years of this experiment, during which a large number of entire families have been treated, have shown that "with these three items—a decent home, an adequate budget, and proper supervision—families afflicted with the ills flowing from tuberculosis and poverty can be rehabilitated." [48]

[46] W. H. Matthews: Report of the Director of the Department of Family Welfare, New York Society for Improving the Condition of the Poor, 1914.

[47] Poverty and Tuberculosis, Two Years of the Home Hospital Experiment, 1912-1914. Publication No. 84, New York Society for Improving the Condition of the Poor, p. 33.

[48] *Ibid*, p. 5.

But poverty is not merely a cause of sickness; it is also a result of sickness. "We are apt to forget," is the reminder made by Sidney and Beatrice Webb in their recent book "Prevention of Destitution," "that, in all countries, at all ages, it is sickness to which the greatest bulk of destitution is immediately due." [49] The British Royal Commission, in its report on poverty in the United Kingdom, announced as its conclusion that "at least from 55 to 60 per cent. of the poverty in Great Britain is due to one cause—sickness." Sickness is in itself the contributing cause of so many elements in destitution that it is hard to separate it as a distinct factor, for the inability to grasp or retain the opportunity to be employed may have for its first cause an illness or weakened physical efficiency due to ill health. In 5,000 destitute families coming under the observation of the Charity Organization Society in New York City, sickness was found to be incident to about three-fourths of the cases.[50] More extensive and exact data are afforded in a study of the causes of destitution in 43 industrial centers in the United States during the six months from December 1, 1908, to May 31, 1909, conducted by the Federal Immigration Commission. Over 31,000 cases reported data complete enough for this study, and nearly 120,000 persons were involved in these 31,000 cases. It is extremely significant to note that about 21 per cent. of the cases requiring relief were due to the specific cause "illness of

[49] P. 15.

[50] E. T. Devine: Misery and Its Causes, p. 204.

breadwinner," and that nearly 18 per cent. were due to the specific cause "illness of another member of family." Thus nearly 40 per cent. of the cases requiring relief, involving about 49,000 persons out of the 120,000 concerned, were found to be due to sickness. Nearly three-fourths of the men who were given relief were married at the time. In only 16.4 per cent. of the cases where families were involved were there no children, while in over 51 per cent. there were three or more children.[51] Of 328,059 persons receiving relief in some form in 1910 from the public charitable institutions in the state of New York, according to reports of the New York Board of Charities, 102,428, or nearly one-third, were driven to seek relief in this manner because of sickness. Wherever records showing the cause of destitution are available, the part that sickness plays in creating paupers is unmistakably shown to be appallingly great.

[51] Reports of the U. S. Immigration Commission, Vol. 34. Cities included in this investigation were chiefly the smaller and middle-size industrial communities and did not include New York or Philadelphia. Geographically they were distributed as follows: North Atlantic States, 17 localities; North Central States, 18 localities; Southern States, including the District of Columbia, 4 localities. Nearly 62 per cent. of the cases included in the study were native-born individuals and families.

IX

THE ADEQUACY OF WAGES AND EARNINGS

THE conception of insufficient earnings—whether they be due to low wages or to a lack of employment, or both—as a fundamental cause of disease, industrial inefficiency and civic weakness, has become very general in recent years. It is no longer a part of trade-union propaganda, but it is coming to be one of the things that the average man takes for granted. Only on rare occasions is the assertion made nowadays that the families of workingmen without adequate means are usually the victims of workingmen's laziness or bad habits, or of the "cost of high living." Recent investigations made along scientific lines, of actual conditions, and the massing of statistical evidence, have not only strengthened this conception, but they have shocked the equanimity of the man on the street by making it coldly clear that a considerable proportion of the wage-earning population have not been able in recent years to maintain a standard of living that is conducive to health and efficiency. The public has had its attention drawn to the fact that at all times, and at some times more than others, there is an appalling amount of poverty in our large cities

and industrial towns. Careful studies of the prevalence of disease among wage-workers are giving less emphasis to the so-called occupational hazards, because they are finding that a great deal of the prevalent ill health is due to the inability of wage-earners and wage-working families to make ends meet. The self-evident proposition that facilities for maintaining health, comfort, decency, and much of recreation and education (in spite of the extension of public facilities), are purchasable things, and the very evident fact that a serious lack of these things has been found among so great a proportion of the wage-working population, are becoming looked upon as undeniable premises to the conclusion that the wages and incomes of many workers and their families have been inadequate, except, perhaps, in periods of abnormal industrial activity and restricted immigration, such as the present period of 1915-1916.

It remains to be stated how exactly this conclusion is borne out by statistically presented facts. To what extent, therefore, are wages of American workers and incomes of American wage-earners' families adequate to maintain efficiency and reasonable comfort, and to provide for their desired and hoped for social progress and economic advancement?

A satisfactorily accurate answer to the question is difficult, perhaps impossible. Opinions differ as to what standard is necessary for the attainment of such an ideal. There are, doubtless, some who are not disposed to concede the expediency (even if they do concede the justice) of such an ideal for the entire population of a

country, and who cling to a social classification based on economic castes as necessary for the natural selection of the strongest economic individuals. There are doubtless to be found, even in this day, those who are consciously indifferent to a distribution of national wealth which leaves some without even the means of subsistence. There are unmistakable signs, however, of a verdict from society at large against philosophies and indifferences such as these. Humanitarians and utilitarians are joining hands in efforts, not merely to relieve, but to prevent conditions that result from the economic impotency and insecurity of those who are unable, individually or as a group, to attain a level of tolerable living. The trend of labor legislation in recent years is an unmistakable evidence of the times. The minimum wage laws and the growingly popular movement for social insurance, to cite no other examples, are clearly among these efforts. As a result there has been a tendency not simply to question the supposed adequacy of the wages of American workingmen and workingwomen, but to set up standards below which wages and family income should not be allowed. Intensive and comprehensive examinations of wages and income in relation to the actual cost of living have been made, and wages have been carefully scrutinized from the point of view of what they must provide for in order to permit efficient work and decent living.

It is purposed here to review the evidence and to summarize these findings for what they are worth. Apparently they tend to coincide with observations gen-

erally made and accepted and to point to certain definite standards. They are briefly presented under the following heads: (1) The adequacy of earnings of male workers to support families; (2) The adequacy of women's wages to support independent women wage-earners; (3) The adequacy of the incomes of wage-working families; and (4) The workingman's family and higher living costs.

Adequacy of Earnings of Male Workers to Support Families

It does not require the fixing of any standard of "minimum" or "comfortable" living for the workingman's family to determine the adequacy of the earnings of the fathers of families to supply sufficient income. If it were necessary to show that the annual earnings of male workers of marriageable age, as shown by the statistics obtained by a large number of authoritative investigations, have been insufficient in recent years, it is amply indicated by the fact that in every industry and in many trades and occupations the average family income has been considerably larger than the earnings of the father. Less than half of the wage-earners' families in manufacturing industries, according to undeniably authoritative data, depended entirely upon the earnings of the fathers. With the exception of the families whose heads are engaged in occupations where wages are considerably above the average, the evidence, as has been pointed out, showed that the larger the family income the greater were the proportionate

contributions from the wage-earning mother and wage-earning children, or from boarders and lodgers. The conclusion is inevitable that the earnings of the father in the average family were insufficient to maintain even the standard of living that *actually* prevailed, much less the standard that students of living conditions have agreed *ought* to prevail.

To illustrate in as brief a manner as possible, a comparison of the annual earnings of adult male workers and heads of families may be made with total family income. Such a comparison is possible for a large number of workers and families in typical industrial localities and industries from the statistics published in the reports of the Federal Immigration Commission, as follows:

COMPARISON OF ANNUAL EARNINGS OF ADULT MALE WORKERS AND HEADS OF FAMILIES AND TOTAL FAMILY INCOME[1]

	Total number selected	Average for all	Per cent. having earnings or income				
			Under $500	Under $700	Under $750	Under $800	Under $1,000
Annual Earnings:							
Adult males ..	26,616	$475	60	84	..	92	97
Family heads ..	15,038	...	50	78	..	89	96
Total family income	15,726	721	31	..	64	..	83

The investigation of 15,704 families included above showed that less than half of them were supported entirely by earnings of the father or family head, as

[1] Compiled from Reports of United States Immigration Commission, vol. 20. Since the data for adult male workers, family heads, and families were obtained in the same industries and localities and families, and the individuals included in the family data were also included in data for annual earnings of male workers, the comparison given above is obviously fair.

indicated in the following summary for a number of important industries:

ADEQUACY OF EARNINGS OF HEADS OF FAMILIES TO PROVIDE TOTAL FAMILY INCOME[2]

Industry	Average earnings of head of family	Average family income	Per cent. of families entirely dependent on earnings of head
Agricultural implements	$576	$741	51.0
Cigars and tobacco	821	970	51.6
Clothing	530	713	48.2
Coal mining:			
Anthracite	457	618	36.2
Bituminous	451	577	40.6
Collars and cuffs	662	861	39.8
Copper mining and smelting	740	991	46.5
Cotton goods	470	791	32.2
Furniture	598	769	42.3
Glass	596	755	44.8
Gloves	650	904	24.3
Iron and steel	409	568	40.5
Iron ore mining	706	990	55.0
Leather	511	671	44.6
Oil refining	662	828	42.2
Shoes	753	765	34.8
Silk goods	448	635	46.0
Slaughtering and meat-packing	578	781	51.4
Sugar refining	549	661	30.2
Woolens and worsteds	400	661	24.9

An earlier investigation of an even larger number of workingmen's families showed a similar situation. In 25,440 families investigated by the Federal Bureau of Labor in 1901, the average annual earnings of the father were found to be $621, and the total income of the family $749. There was thus a difference of $128 annually, or over 17 per cent. of the family income, which came from other sources. The average

[2] Compiled from the reports of the United States Immigration Commission.

total annual expenditures of these families were found to be approximately $700. In other words, the average family had to have nearly $80 a year more than the father could earn in order to maintain the existing standard of living.

It does not require more than a glance at the foregoing statistics to see that the gap between family income and earnings of the family head was considerably larger in the later investigation and that in the industries where the earnings of the family head were low the gap was large. In other words, there is such a thing as a minimum standard of family subsistence—altho if exprest in exact figures, it may vary according to race, locality and size of family—to which all wage-earning families strive to reach. If the head or "breadwinner" can not reach it, the wife and children must help by working for wages or keeping boarders and lodgers.

The conclusion already stated in these pages, that the average male worker in the basic and more regularly operated industries loses in years of ordinary industrial activity between a sixth and a third of his working time for various reasons, suggests the inadequacy of full-time wages to maintain a family of average size according to existing standards. If all loss of wages due to irregularity of employment could be eliminated, and if the male adult worker could work every week in the year, would his earnings be sufficient to maintain his family according to prevailing standards among the wage-working population?

The available evidence points unmistakably to a nega-

tive answer for at least a very large proportion of the male wage-earners in the United States. A single illustration will make the point clear. The Federal Immigration Commission's data for 220,000 adult male wage-earners employed in all occupations in a large number of representative plants in the principal industries showed an average weekly wage of $12.64. Computed in terms of full-time annual earnings (52 weeks) this wage would mean a maximum average of about $665, as contrasted with an actual average family income of between $700 and $800 a year. Statistics of weekly earnings of male workers and of annual family income, already summarized in the foregoing pages, afford numerous and illuminating illustrations of a similar character. While in some occupations and trades full-time weekly wages would appear to be sufficient to supply a family income as large as that indicated to be the actual average, in many occupations and trades—apparently in the majority of industries—full-time wages do not appear to be sufficient. Thus the conclusion is suggested that even in years of extraordinary industrial activity, when the greatest opportunity for full-time earnings is possible, there were many wage-earning men who could not make enough, at wage rates then prevailing, to support a family of the average size even according to standards that have been found to prevail.

The significance of these facts will at once appear when they are taken into consideration with the facts relating to the actual sources of income in wage-working families, as shown by recent investigations and sum-

marized in a previous chapter. The inadequacy of the wages of a large proportion of adult male workers who are heads of families to provide for the actual needs and wants of their families has been found to be the reason in a large proportion of families why mothers must supplement the wages of fathers by earning wages as industrial workers or by increasing their home duties in taking boarders and lodgers, and why many children can not take full advantage of the opportunity offered by systems of public education, and must seek employment as wage-workers. It seems to be fairly generally recognized that the pressure of necessities such as these brings in its train serious effects upon the health and upon the mental and civic efficiency of the wage-working population and can not do otherwise than affect community and national standards, both economic and social. The realization of what such conditions mean has given a strong impetus to a new conception of the proper standard of wages for wage-earning men. This conception has been exprest in recent literature in a number of different ways. In Australia, for example, it has been set forth in administrative orders for minimum wages and upheld in the courts. Perhaps the latest and most complete statement of it in the United States appeared in the so-called "staff report" to the Federal Commission on Industrial Relations, which said:[3]

"The welfare of the State demands that the useful

[3] Final Report of the Commission on Industrial Relations, 1916, p. 92.

labor of every able-bodied workman should, as a minimum, be compensated by sufficient income to support in comfort himself, a wife, and at least three minor children, and in addition to provide for sickness, old age, and disability. Under no other conditions can a strong, contented and efficient citizenship be developed."

The Adequacy of Women's Wages

There is general agreement in wage determinations by various minimum wage commissions, and in the results of various investigations, that the American woman wage-worker should receive more than $8 a week in order to maintain conditions of decency and health. This conclusion is based on the actual cost of living for several thousands of women workers, and assumes that the wage paid should be sufficient to maintain the worker independently.

The fact that about 80 per cent. of women workers do not live independently, but live at home, has not been taken to constitute a valid argument against the proposition that a living wage should be paid to all women. It has been regarded as fundamental, by advocates of the minimum wage, that if the productive efficiency of a wage-working woman, living away from home, entitles her to a living wage, it also entitles other wage-working women to a living wage. Furthermore, as the Wisconsin Industrial Commission ascertained in an investigation of 13,686 women workers living at home —practically all of whom contributed all or part of

their earnings to family income—the actual cost of maintaining women workers at home does not differ materially from the amounts paid by women living away from home. It was found that in 58 per cent. of these cases the actual wages ran below the standard living cost of $9.50 per week, and in 6 per cent. of the cases the wages were less than their share in the family's food and rent budget alone.

Some determinations of minimum costs of independent living for women workers are higher than $8 a week; the cost varies largely according to locality. The Massachusetts Commission on Minimum Wage set 15½ cents an hour for brush factory workers, which, on a 54-hour basis, would allow $10.37 per week, and set $8.90 for workers in retail stores. The Minnesota Commission set $8.75 for women factory workers, with rates from $8 to $9 for workers in other occupations. The Oregon law set $8.25 a week for experienced women workers in any industry and $6 for inexperienced workers. In Utah, the law placed $1.25 a day or $7.50 a week for experienced workers. The Washington State Commission set $8.90 a week for factory workers, with slightly lower rates for apprentices and girls under 18 years of age, and higher rates for certain occupations such as stenographers, bookkeepers, etc., and mercantile employees.

Assuming $8 as the lowest amount possible, the actual statistics of wages for women workers indicate a serious inadequacy of women's wages. As stated in the foregoing pages, the available statistics indicate

that over three-fourths of the women workers in the principal industries and in mercantile establishments get less than $8 a week. Nearly half receive only $6 a week.

This does not include lost time due to irregularity of employment. A recent and comprehensive review of the data relating to irregular employment of women workers points out that there are "three classes of women workers fairly well defined:[4]

1. "The smaller group of those permanently employed, forming the backbone of the labor force.

2. "Those who are employed for the entire busy season, but are laid off at the close.

3. "Those who drift in and out of the industry, working only a few days or weeks at a time in one place."

This study stated the following conclusions:[5]

"All facts agree that actual earnings fall far short of possible earnings based on 'rates of pay.' This investigation leads also to the conclusion that, at least for the workers here considered, the average girl or woman loses in wages an amount equal to no less than 15 per cent. of her possible earnings. The younger, more irregular worker loses an even greater amount."

For the second and third groups of women workers mentioned above, more time is "lost" than "worked."

With these conditions thus suggested in even a very general way, the graphic facts as to the living condition of women workers point unmistakably to the con-

[4] Irregular Employment and the Living Wage, by Irene Osgood Andrews, American Labor Legislation Review, June, 1915, p. 306.

[5] *Ibid*, p. 311.

clusion that low wages for women have thus two general groups of effects:

First, in the case of the woman worker living at home, the family receiving all or part of her wages is not compensated for her employment beyond her mere subsistence. Her low wages are unfair to the bankrupt family as well as to the worker herself.

Second, low wages of independent women workers have a peculiarly direct effect upon their health. In order to meet expenses for lodging and clothing they reduce their diet to the minimum, often below the minimum, and go without medical attention until it is too late for medical care to restore them to normal efficiency.

There has not been established any direct causal relation between low wages and immorality of women, but the investigations agree that low wages are an important contributing factor.

The Adequacy of Family Income

The foregoing summary of recent discussions and determinations of "adequate" wages has suggested conceptions of wage standards about which wide differences of opinion exist. Aside from those who doubt the expediency or even the justice of a wage standard under modern industrial and social conditions, for male workers, which will enable them to support families, or for women which will enable them to support themselves independently of their families, there are many who seriously doubt the practicability of such standards.

It is not purposed here to discuss the validity of these views. But, as a point in fact, the following question appears to be pertinent:

Does the actual wage-working family, even when wife and children are industrially employed for wages or when funds from boarders and lodgers or from other sources are secured, have an income sufficient to maintain a standard which permits nutritious diet, healthful housing and community environment, reasonable comforts, and proper provision against sickness and old age? Are these expedients to supplement the wages of the father, to which wage-working families have so generally resorted, adequate to allow a fair minimum of decent, healthful and tolerable living?

A general answer to this question has doubtless already suggested itself in the summarization given in a preceding chapter on living conditions of wage-working families. The fact that large numbers of these families in our large cities and industrial towns live under conditions unfavorable to health, decency and comfort is, in itself, an eloquent and undeniable answer. For there will be few to combat the obvious statement that a very small proportion of these wage-working families would live under such conditions if their incomes were sufficient to enable them to live under better conditions.

The question can be answered more definitely, however, than this. As the result of a number of careful, scientific studies of standards of living among families of wage-earners, there are available some data

of an authoritative nature which at least points to a reasonable basis for a definite conclusion as to what approximate annual income the normal or average family must have in order to maintain such a standard. Given some idea of where the border line between poverty and adequate subsistence lies, it is possible, with such information as to actual wages and family income as have been presented, to make an estimate, albeit a very general one, of the proportion of wage-working families on the poverty side. Stated briefly, and as definitely as a consideration of available facts appears to warrant, it seems to be fair to venture this conclusion:

The workingman's family of average size (two adults and three children) should have an annual income of about $800 to maintain a standard of living that, with ordinary frugality, will allow provisions for separate and decent existence, health, and a modicum of reasonable comfort, in the usual industrial locality and at prices which have prevailed during the last few years. In certain localities where the cost of living is lower because of cheaper food supplies, cheaper rents, less need for fuel, and the like, a lower minimum of income is possible. The same would be true in smaller than "average" sized families. The opposite is true of localities where living costs are unusually high, or in families of greater than average size, or families in which unusual conditions, such as invalidism, exist. Generally speaking, however, $800 appears to be the approximate

figure which the evidence obtained in recent years has suggested.

The nature of this evidence is summarized and illustrated in the following paragraphs:

The Point of Adequate Subsistence.—The various recent investigations of budgets of families in different ranges of income appear to indicate quite clearly that the point of adequate subsistence is not reached until an income of about $800 or $900 is provided. The percentage of family income spent for food remains practically the same, or is greater, in families with incomes of less than that amount; in families with incomes of $800 or more, the percentage of income spent for food is found to be proportionately less as income increases, indicating that only then is income sufficient to allow a surplus left from food, rent, etc., to be spent on "incidentals."

This conclusion was shown by the British Board of Trade's inquiry into the cost of living in American towns, in 1909, as well as by Chapin's New York investigation, in 1907, to which reference has already been made. "These figures," said Chapin, referring to the percentages in relation to income groups, "would seem to indicate that not until the family is able to spend well beyond $1,000 does it satisfy its wants for food on a smaller proportion of its total income than when it had only $600 or $700 for all purposes. Whether this is due to insufficient nutrition or lower income, or to indulgence of more expensive tastes as resources increase, we may be able at a later point to suggest.

Certainly the point of diminishing percentages of expenditure for food is placed much higher in the income scale than in the cases on which Engel based his well-known generalizations." [6] Engel's generalizations were borne out quite positively with regard to expenditures for food by the Federal Bureau of Labor's Cost of Living Study in 1901, as the statistics already quoted in the chapter on Family Income and Expenditure shows. Chapin's more intensive study furnished further data, which are extremely interesting, regarding the proportion of underfed in the various income groups. An analysis of the nutrition values of the food of these families showed that the proportion of underfed families was as follows: [7]

FAMILY INCOMES AND PERCENTAGE OF UNDERFED FAMILIES IN EACH INCOME GROUP

Family Income	Per cent. of underfed families	Family Income	Per cent. of underfed families
$400-$599	76	$900-$1,099	9
600- 799	32	1,100 and over	0
800- 899	22		

"This means," comments Professor Chapin, "that with less than $600 to spend for all purposes, an adequate food supply is not provided, and that on from $600 to $800 incomes, one family in three is underfed, while less than one in 10 of the families having $900 and

[6] R. C. Chapin: Standard of Living in New York City, p. 123.

[7] *Ibid*, p. 127. These analyses were made by Dr. F. R. Underhill, professor of physiological chemistry in Yale University, upon the scale of values adopted by the Federal Department of Agriculture.

$1,000 to spend fell short of the minimum for food."[8]

The point of inadequate subsistence has also been indicated by various investigations into the health of wage-working families and by mortality statistics. The relation of poverty to disease is discust in greater detail in an earlier chapter, but it is perhaps significant to note that the careful studies of infant mortality by the Federal Children's Bureau point to a very definite line of adequate subsistence. In a steel manufacturing town, Johnstown, Pa., for example, it was found that unless the family had an annual income of about $800 or more, the death rate among infants was considerably

[8] *Ibid*, p. 128. Chapin also presented statistics as to underfed, underclothed and overcrowded families in the various income groups, from which the following tabulation has been made (p. 241):

PER CENT. OF FAMILIES UNDERFED, UNDERCLOTHED AND OVERCROWDED, BY INCOME

Family Income	Number of families	Per cent. which were					
		Underfed	Underclothed	Overcrowded	Underfed and Underclothed	Underfed and overcrowded	Underclothed and overcrowded
$ 400-$ 499	8	100	88	63	88	63	50
500- 599	17	65	88	71	59	47	53
600- 699	72	33	63	57	18	19	39
700- 799	79	30	52	58	14	19	35
800- 899	73	22	32	53	10	15	25
900- 999	63	8	25	40	3	6	11
1,000-1,099	31	10	3	30	..	3	..
1,100-1,199	18	..	6	21	..	..	..
1,200 and over	30	..	..	..	..	..	..
Total	391	..	..	..	..	..	..

The size of the families included in the above statistics was not less than 4 nor more than 6 persons, the average size in each income group being approximately 5 persons.

above the average.[9] Using infant mortality as an indicator of healthful conditions of living, this can be interpreted only as meaning that a family could not provide sanitary housing, healthful environment and adequate food, or permit the mother to stay at home and not be a wage-earning member of the family, unless the family income was over $800 a year.

Studies of Minimum Standards of Family Income.—With the foregoing evidence as to the point of adequate subsistence, the results of several intensive studies of minimum standards of family income tend to agree. Giving what seems to be due allowance for differences in methods of investigation, in point of view, and in conditions considered, these studies by various authorities of actual conditions in workingmen's families may be said to strengthen the estimate that unless a family of the normal size[10] has an income of about $800,[11] it can not maintain such a standard of living as we have had in mind. It is generally agreed, of course, that a greater measure of health than this minimum would

[9] United States Department of Labor, Children's Bureau: Infant Mortality —Results of a Field Study in Johnstown, Pa., p. 45. In families where the father earned less than $521 a year, or less than $10 a week, the infant mortality rate was 255.7, as contrasted with 130.7 for the community as a whole, and it was three times as high as in families where the father earned $1,200 or more a year. In a similar investigation in Monclair, N. J., the Children's Bureau found that the infant mortality rate in families where the income was less than $12 a week was more than twice as high as in families where the income was $23 or more a week.

[10] A family of five persons—father, mother, and three dependent children.

[11] R. C. Chapin: Standard of Living in New York City; L. B. More: Wage-Earners' Budgets; New York State Conference of Charities and Corrections committee on standards of living; M. Byington: The Households of a Mill Town; J. C. Kennedy: Wages and Family Budgets in the Chicago Stockyards District; Fourth Annual Report of the New York State Factory Investigating Commission, Vol. iv; New York City Bureau of Standards: Report on the Cost of Living for an Unskilled Laborer's Family.

afford would be desirable, but approximately $800 seems to be regarded as the least amount necessary after paring down all expenditures for food, clothing, rent, insurance, health, furnishings, recreation and incidentals to a degree that hardly seems possible with the utmost frugality.

The closeness with which these determinations have been made will be clearly evident if some of them are itemized in some detail and compared with an estimate submitted by a labor union composed of skilled workers and another for government employees. During 1915, five determinations and estimates of the minimum cost of maintaining a family appeared, two of them being made by the New York Factory Investigating Commission, one by the New York City Bureau of Standards, one by a representative of the legislative committee of the American Federation of Labor, one by the Amalgamated Association of Street and Electric Railways. The last named was an estimate used by representatives of street railway employees in the recent arbitration in Chicago. They are summarized for purposes of comparison in the table on p. 374.

These determinations are corroborated, in large measure, by other well-recognized investigations. For New York City, Professor Chapin, in 1907, arrived at the conclusion that "an income under $800 is not enough to permit the maintenance of a normal standard" for a family of five persons; Mrs. Louise B. More's investigations in 1906 pointed to "at least $728 a year"; and the special committee of the New York State Con-

ESTIMATES OF ANNUAL COST OF LIVING FOR WAGE-WORKERS' FAMILIES IN NEW YORK CITY, BUFFALO, CHICAGO AND WASHINGTON, BASED ON FAMILIES OF FIVE PERSONS

Items of Expenditure	New York City Bureau of Standards *c*	New York City, N. Y., Fac. Inv. Com. *a*	Buffalo, N. Y., Fac. Inv. Com. *a*	Chicago St. Ry. Employees *b*	Washington, D. C., A. F. of L. Com. *d*
Food	$380.00	$325.00	$281.00	$529.13	$274.00
Rent	168.00	200.00	120.00	240.00	240.00
Fuel and Light	42.00	20.00	40.00	86.00	49.00
Clothing	104.00	140.00	140.00	167.25	153.00
Carfare	30.30	31.20	31.20	26.00	.....
Insurance	22.80	35.60	35.60	20.00	.....
Health	20.00	22.00	22.00	20.00	.....
Furnishings	18.00	7.00	7.00	65.50	35.00
Newspapers	5.00	5.63	5.63	3.00	.....
Recreation and amusements	40.00	50.00	50.00	7.50	.....
Miscellaneous	10.00	40.00	40.00	45.50	15.00
Total annual	$840.18	$876.43	$772.43	$1,209.88	$766.00
Average weekly	$16.15	$16.85	$14.85	$23.24	$14.73

a Fourth Annual Report of the New York Factory Investigating Commission, 1915, Vol. iv, p. 1668.

b American Federationist, October, 1915, p. 837.

c Report on the Cost of Living for an Unskilled Laborer's Family in New York City, submitted by the (New York City) Bureau of Standards.

d This estimate was presented by Arthur E. Holder, of the legislative committee of the American Federation of Labor, in support of the Nolan bill for a $3-a-day minimum wage for government employees at a hearing of the Committee on Labor, held on March 21, 1916. Mr. Holder stated that $766 would "simply purchase a bare subsistence," and is "much below a decent living standard." "You will observe that I have tabooed every form of 'luxury,'" he was quoted as commenting. "Receiving $765.95 a year, there could be no riding on street cars for this workingman's family, no tobacco, no candy, no books, no Sunday-school contributions, nothing for the church; no newspapers, no movies, no lodge dues, no insurance, no postage stamps and no doctor's bills—for, of course, on the 'substantial' diet purchased for 75 cents a day a family of five would run no chance of ever getting sick. Moreover, the family must remain stationary—no births, no deaths, no accidents, no medicines, no doctors. In regard to 75 cents a day for food for a family of five, if there is a woman in the District of Columbia who can buy the food for that family with 75 cents, I will take off my hat to her as the greatest financier in America."

ference of Charities and Corrections reported in 1907 that a conservative estimate was that "$825 is sufficient for the average family of five individuals"; Prof. J. C. Kennedy's investigations of the families of stockyard workers in Chicago, caused him to conclude that no family of five could "live decently and efficiently in the stockyards district" on less than $800 a year. The Pittsburgh Survey's investigations in 1907 and 1908 concluded that $1,291 was a sufficient family income, but $200 more was allowed for "sundries" than is usually allowed in other estimates.

It seems hardly necessary to resort to scientifically ascertained facts as to actual living conditions to determine that $800, in round numbers, is about as little as the ordinary family can live on if it lives healthfully, comfortably and efficiently. A glance at actual expenses for unquestionable necessaries should be sufficient. It must be very evident that the family of average size living in the average industrial town, with an income of, say, $800—if it must spend $650 or $700 for food, rent, clothing, and fuel and light—can have very little surplus for savings or extraordinary expenditures. Out of what is left "must come the funds for amusements and recreation, books, papers and magazines, lodge and union dues, benefit and insurance premiums, sickness, upkeep of household and kitchen furnishings, and the hundred-and-one incidental expenditures that are common even to the most frugal households. A death in the family is a heavy expense; the birth of an additional member of the family is a

cause, not only of lessened family income in families where the wife is a wage-earner, but also of immediate expense and the promise of increasing cost in the future. For we are speaking of the 'average' family with an income of $700 to $800 a year, which is considered adequate if everything 'goes right.' But sometimes things 'go wrong.' " [12]

In the light of the evidence which points to an annual family income of approximately not less than $800 as a reasonable minimum for healthful, efficient, and decent living for a family of the ordinary size, the statistics of wages and earnings of family heads and of annual incomes of workingmen's families do not afford grounds for gratification over the economic status of labor in the United States during the past decade. It appears to be an inescapable fact that a very large proportion, possibly a half, of the wage-earners' families in the principal industries of this country have been below that level during the past few years. It is doubtful whether the increases in wages that have been made in the period of extraordinary demand for labor and of restricted immigrant supply which began in the summer of 1915 and prevailed through 1916, will establish all families depending upon employable breadwinners so firmly above that level—if, indeed, this has been done even in these very fat years—that in future times of ordinary industrial activity and less restricted immigration, to say nothing of the periodically recurring lean

[12] B. S. Warren and Edgar Sydenstricker: Health Insurance—Its Relation to the Public Health, Bulletin 76 of the U. S. Public Health Service, March, 1916.

years, they will be able to maintain a standard of tolerable living.

The Workingman's Family and Higher Living Costs

No definite conception of the adequacy of wages and of family income is possible, of course, without taking into consideration the increase in the cost of living since 1900. There has been a great deal of discussion of the "race" between wages and living costs but, because of the lack of comprehensive and exact statistics, the most that can be said is that indications point to an extremely close race. It is manifestly unfair, as some statisticians have done, to measure wages in terms of retail food prices alone without determining whether the retail prices of other articles, of services, and of rent, have advanced as rapidly. At the same time, since expenditures for food constitute nearly half of the total expenditures of wage-working families, it is proper to conclude that a 60 per cent. increase in the retail prices of the principal foods must entail sacrifices either in diet or in other lines of expenditure, or in both, unless wages have advanced to an equal degree. It appears to be very plain that in only a few occupations and trades has there been as much as a 60 per cent. wage increase since 1900.

Whether average wages have or have not actually kept up with the total cost of maintaining the wage-worker's family is of scarcely less importance than two other considerations. One is that the family with an income of, say, $650, which was found adequate to

make ends meet in 1900, can not ordinarily make ends meet now, and there are many such families with equally as great demands and necessities as then. Even tho the average family may, because of increases in wages and of the employment of its women and children, have kept its income apace with the advancing cost of living, the pressure of higher living cost still falls heavily upon those who are below the average. The other consideration is that the social standard of minimum subsistence has become more costly. New desires and new wants have been created, and it is impossible to assume that the wage-working family has not been affected in much the same way as the family of the business man, the banker, the office worker, or even the farmer. Certain changes in the manner of living have occurred that probably the wage-working family, as well as any other family, could well do without; there are other changes, however, which have been brought about in response to those wants whose creation has been the mark of advancing civilization. Good or bad, changes in the customs and manner of living can not be overlooked in considering the question of adequacy of wages and family income. They are social products for which we can blame the wage-working population least of all. The fact which is of distinct pertinence here is that even if the levels of prices and wages had remained without change since 1900, the cost of living would have increased, because the social standard of living has become more expensive. To live adequately to-day costs more than it did even ten or

fifteen years ago, not simply because prices have gone up, but because our standards of health, comfort, and efficiency are more exacting, to say nothing of the cost of satisfying those new desires which we might do without.

Aside from these considerations, however, the facts, so far as they are available from statistical sources, of higher living costs in relation to wages and income deserve to be mentioned because of their importance in throwing light on present conditions. The statistics of full-time weekly wages furnished for a number of trades and industries by the Federal Bureau of Labor Statistics appear to indicate that up to 1915 the average increase has been between 25 and 30 per cent. since 1900.[13] These figures are possibly too high since the statistics may include a disproportionate number of well unionized skilled trades whose wage rates have advanced more rapidly than those of unskilled occupations. In contrast may be presented statistics of prices. Unfortunately, statistics of retail prices are available only for foods,[14] but at least some idea of the advance in prices of other articles may be gained from the wholesale price statistics furnished by various governmental and commercial authorities. Se-

[13] See the discussion by I. M. Rubinow, Chief Statistician of the Ocean Accident and Guarantee Corporation: The Trend of Real Wages, *American Economic Review*, December, 1914, pp. 793-817.

The wage statistics used by Dr. Rubinow in his computation are those regularly published in the retail price bulletins of the Bureau of Labor Statistics, and cover cotton goods, woolen goods, silk, boots and shoes, knit goods, lumber, millwork, furniture, building trades, bakers, marble and stone cutting, foundry and machine shops and printing.

[14] See Bulletins of the U. S. Bureau of Labor Statistics on Retail Prices of Foods.

lecting the statistics for those items of expenditure which we have seen to be the principal necessaries, the advances in prices from 1900 to 1913 may be roughly stated as follows:

Item	Per cent. of increase 1900-1913
Food: retail *a*	62
wholesale	31-52
Clothing (and cloth): wholesale	16-20
Fuel: retail (coal, 1907-1913)	5-10
Fuel and lighting: wholesale	17
Housing: wholesale prices of lumber and building materials	31
Wages of building labor	45
Household furnishings: wholesale	11

a Retail price data exist for only food and coal, and are supplied by the records of the Federal Bureau of Labor Statistics. For the other items only wholesale price data are available, and are therefore not adequately indicative of the full extent of their advance in the prices paid by the ultimate consumer. The wholesale price data are supplied by the Federal Bureau of Labor Statistics, Bradstreet's, R. G. Dun & Company, the New York *Times Annalist*, and Thomas Gibson. Where two figures are given in the summary for one item, the minimum and maximum results, as shown by different authorities, are indicated.

The increased cost of maintaining the wage-working family can not, of course, be stated definitely on the basis of such statistics as the above, but a suggestive illustration is pertinent:

The extensive budgetary investigation of workingmen's families conducted by the Federal Bureau of Labor in 1901 [16]—before the advance in prices began to be markedly evident—found that the "normal" family was able to subsist and even have savings upon an income of between $600 and $700 a year, according to the standard of living then existing.[17] The average

[16] See Eighteenth Annual Report of the U. S. Commissioner of Labor, 1903.

[17] By "normal" family was meant the family in which the man is the breadwinner and the wife nonwage-earning, and the children under fourteen years of age and dependent.

family in that range of annual income was found to have an expenditure of $612 for all purposes at prices then prevailing. This amount was found to be spent approximately in the following manner:

Item	Amount	Per cent. of total expenditure
Food	$266	43.5
Rent	113	18.5
Fuel and light	35	6.0
Clothing	79	13.0
Sundries	119	20.0

Applying the percentages of increase in the various items of expenditure, what would the same family have required to maintain the *same* standards in, say, 1913, as it did before the great price advance began?

Wherever retail price data are available, they may, of course, be used. In the case of wholesale price data, it seems to be conservative to use the highest percentages computed from the various wholesale price authorities. In the case of rent, 35 is used as the percentage of increase, taking into consideration both the higher cost of building materials and the higher labor cost. This seems to be very conservative in the light of statistics of actual rent increases for shorter periods than the 1900-1913 period.

Upon this conservative basis, the following results appear (see the table on p. 382).

Allowing for no increase in the cost of the "sundries" actually bought or necessitating expenditures, and for no increase in the number of "sundry" expenditures to meet the broadened and greater variety of

wants in 1913, as compared with 1900, the cost of maintaining a family according to the *same* standard now as then would have been over $200 greater, or an increase of 35 per cent.

Item of Expenditure	Amount expended in 1900	Increase in price	Amount necessary in 1913
Food	$266	62	$430 *a*
Rent	113	35	152
Fuel and light	35	17	41
Clothing	79	8	85
Sundries	119	..	119
Total	$612	..	$827

a It is significant to note that the United States Public Health Service paid about 35 cents a day for a well-balanced ration sufficient to supply an adult male with 3,000 to 3,500 calories a day for its marine hospital employees, etc., in 1914. On this basis, the annual cost of food for a family as defined above (3.3 adult male units), would be approximately $420 a year. The cost of the United States Public Health Service ration was based on retail prices prevailing during the year, and the food was purchased under annual contract. The contract prices would be somewhat lower than ordinary retail prices, but the quality of food was of the best grades. Hence the figure, $430, is believed to be conservative.

It would be improper, of course, to attempt anything like an exact estimate of the increase in family living costs by such a method, and by such data as have been employed in the foregoing illustration. Statistics such as these are possibly of some value because they serve to stimulate a consideration of the economic status of the wage-earning population in definite and understandable terms. They are not, however, wholly without value as indicating the actual trend of conditions, especially when individual experience, frequently appearing observations, and conclusions of careful students of conditions so positively tend to corroborate them. They may be accepted in a general way as sug-

gesting the manner in which higher living costs have affected wage-working families. To state it conservatively, the effect of the increased cost of living has been to nullify, in large measure, the advantages gained by wage increases and by sacrifices made by the wives and children of workingmen in entering industrial employment.

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